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MOST of our readers know something of the unfortunate result of the competition for the Boston Public Library, in which, after offering very liberal prizes, the city failed to obtain a plan suitable for its purposes, not through any fault of the architects, but simply, to put in a few words the general conviction on the subject, because the terms of competition were drawn up without suitable advice. Since the award, therefore, which condemned the tax-payers of the city to pay ten thousand dollars for a few sheets of drawings embodying designs which their authors were compelled by their instructions to make impracticable and injudicious, there has been a good deal of curiosity, among the public quite as much as in the profession, to see what new steps would be taken for procuring proper plans for the building, which must be begun within a few months, under penalty of the forfeiture of the land granted by the State to the city as a site for it. The first of these steps, according to the Boston papers, has just been taken, in the shape of an order, passed by the municipal government, instructing the city architect, a young man who devotes his time to the city building work, to prepare plans for the library building, and submit them to the Trustees of the Library for approval. With all respect to the city architect, we cannot help thinking that the people of Boston would much prefer to have their costly library erected under the direction of some individual of greater distinction in the profession; and, although the terms of the ordinance do not prevent the Library Trustees from employing expert advice in considering whatever plans may be presented to them, it would, we are sure, be more satisfactory to them, as well as to the tax-payers, to have it distinctly understood that no plan would be approved or adopted without professional criticism. We take it that the citizens desire to have the best, most convenient, and beautiful building that their money will procure, and are not only willing, but anxious, to secure this by the only possible mode, that of employing the best architect who can be had to design it; and we imagine, moreover, that they think they have thrown away enough money in trying to dodge this conclusion, and would be glad to see an end of amateur tinkering with the most important building project that the city has undertaken for many years.

THE pressure for the removal of the present architect of the Capitol, Mr. Edward Clark, and the substitution of some politician, still continues, although no reason whatever has yet been given for displacing a man admirably qualified for his duties, who has been professionally connected with the Capitol for thirty-four years, and knows nearly every stone in it, to make a place for some dilapidated party hack. For persons unfamiliar with Washington a little reflection is necessary to understand the importance of such an office as that which Mr. Clark now fills. Perhaps no public building in the world is harder "worked," to use an expressive phrase; and alterations, refittings and repairs are continually going on. To carry these out satisfactorily and economically, or to devise modes of satisfying new wants, such as every year develops, a thorough acquaintance with the fabric is absolutely necessary, and the tinkering of a novice might easily result in irremediable mischief. Unlike many of our public buildings, the Washington Capitol, partly through the skill of Mr. Clark himself, who acted as assistant to the architects of the wings which form the most important portion, is a work of art which may safely challenge comparison with any architectural object in the world, and it would be a misfortune to the whole country to have that discretion which has saved the pure and noble beauty of our principal building from so many dangers exchanged for the guardianship of a man who, however devoted and skilful he might be, must inevitably lack the special tastes and training which have so admirably fitted Mr. Clark for his position.

THE Finance Committee chosen to raise funds to build the pedestal for the great statue of Liberty has at last made a direct appeal to the people of New York to contribute money enough to complete the work at once. Practically, as would seem from the address, the efforts made to raise money in other parts of the country have failed, less than ten per cent of the whole amount subscribed having been received from places outside of New York city and its immediate vicinity, while, as we imagine, the cost of soliciting and receiving these outside subscriptions must have subtracted greatly from the net proceeds. The last appeal is, therefore, very sensibly made to the people of New York alone, and local pride, at last awakened, ought to be sufficient to insure a liberal response to it. From all we can learn, it seems to us that the committee took the responsibility of beginning an unnecessarily costly pedestal for the statue, and it will perhaps deserve a little blame for want of prudence if it should be unable to find resources for carrying out its project, but this is a contingency which, in view of the wealth and real generosity of the New Yorkers, we hope it is not necessary to contemplate.

A RATHER knotty question is likely to come up for judicial decision in New York, and architects who have occasion to plan or construct buildings for jewellers will do well to note the case. Six years ago Mr. Isaacsen, the owner of a building in that city, rented his second floor to a manufacturing jeweller. Some months ago, a man who makes a business of collecting jewellers' sweepings and reducing them for the gold and silver contained in them, came to Mr. Isaacsen, and told him that whenever his second-story tenant moved out he would buy the floor of the rooms which he had occupied, replacing it with a new floor, and paying the landlord a hundred and fifty dollars in cash besides. Mr. Isaacsen kept this offer in mind, and when his tenant notified him, a few weeks ago, that he intended to give up the rooms and move away, assuring him, however, that he would put in a nice new floor before he left, the landlord not only begged him not to take so much trouble, but even forbade him to change or interfere with his floor in any way, threatening to obtain an injunction from the court to enforce his admonition, and finally applying to a lawyer, who served notice on the tenant that the floor was a part of the landlord's building, and must not be disturbed. The jeweller, however, who was quite aware of the value of the dust which had fallen on the floor, disregarded all these threats, and, after removing his machinery, took up all the old boards, sweeping them carefully, and collecting the dust which had fallen between them into the hollow spaces beneath, and finally replaced them by new ones, and sent the old boards and the dust to the smelter, who, as he anticipates, will return him several hundred dollars as the value of the precious metals extracted from them. Meanwhile the landlord, who seems to have something of law, as distinguished from justice, on his side, threatens his tenant with legal proceedings, which we hope, for the sake of seeing so interesting a question decided, will not be long delayed.

A CURIOUS instance of the manners prevalent in the newspaper world of New York, where a disgusting venality is, it would appear, supposed to be the principal influence under which newspaper men act, is to be found in a recent discussion about the street excavations to be undertaken during the approaching spring and summer. It seems that an order was passed there some time ago, requiring the wires of a certain telegraph company to be placed underground within a given

period. The company has postponed compliance with the law until now a few months only remain of the specified period. Among the city newspapers is one which is supposed to be owned by a prominent holder of stock in the telegraph company, and no sooner did the last part of the term approach for laying the wires underground, than this same journal began a series of articles in the interest of the public health, explaining the dangers of excavating the filthy streets of the city during the hot weather, and pointing out the propriety of having such work, if once begun, stopped by the Board of Health. The writer of the articles fortifies his opinion by that of many eminent physicians, and there is no doubt that his apprehensions are in part justified, any extensive excavation, even in the middle of the city, having notoriously been followed by an epidemic of malarial diseases in the vicinity, while his theory that cholera is likely to be invited by disturbing the streets in hot weather, although a rather doubtful one, seems to have a certain basis of fact. Unfortunately, all these warnings and citations are made the subject of great mirth on the part of another newspaper, which openly attributes them to the desire of the proprietor of the former one to save himself, by misleading public opinion, the expense of laying his telegraph wires beneath the surface, and the degrading duel, between what the respective parties to it would have us believe to be unctuous hypocrisy and sneering malice, goes on day after day, to the entertainment, perhaps, of the vicious, but to the deep disgust of the rest of the world.

THE bill providing for the appropriation of the land about Niagara Falls as a public park has passed the New York Legislature, and there is now no doubt that the contemplated improvements will be made. These will consist mainly in sweeping away the mills which have clustered about the rapids above the Falls, and in abolishing the provoking enclosures which cut off access to the river except in certain places, the State for this purpose acquiring the title to the whole of the river bank for some distance above and below the Falls. If the action of the New York Legislature should be followed by corresponding action on the part of the Canadian Government, as is quite probable, the great cataract will once more become one of the most attractive resorts in the world. The cost to the State of taking and improving the river bank will not be great, and is to be distributed over the next ten years by the issue of bonds, so that the contribution which the average tax-payer will have to make toward the good work will be very small in proportion to the satisfaction which he will feel in having it accomplished.

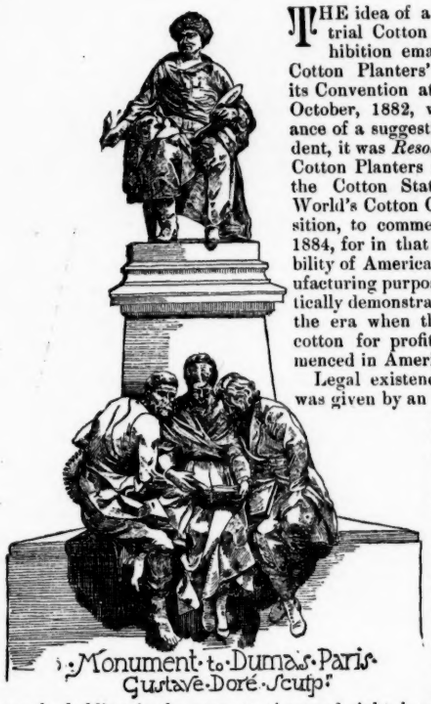
AN interesting exhibition is projected for the coming autumn, to be held in Philadephia, under the auspices of the Franklin Institute, whose management of the Electrical Exhibition was so successful. The new exhibition is to be composed exclusively of novelties, and is to take its name from them, nothing being admitted except devices sufficiently recent to be new to the majority of visitors. In this age of inventions, there is no danger that the space will not be fully occupied, and the idea of limiting the exhibits to things which will be new to those who see them is a very happy one. The most serious question in the administration of such affairs is always to determine what to exclude, and if everything were excluded with which the general public were already familiar, the cream of most exhibitions would still remain, of all the better quality for not being diluted with uninteresting matter. The exhibition opens September 15, and continues a little more than six weeks, the last day being October 31.

THE Trustees of the Boston Museum of Fine Arts, an institution which, though very quietly managed, is gradually getting together a collection, or rather a series of collections, of very great interest and value, have recently published their ninth annual report. As is almost inevitable during the first decade of the life of such a museum, unless sustained by the public treasury, the ordinary receipts of money have fallen far short of the necessary expenses, but it is a satisfaction to know that more than one hundred and sixty-eight thousand persons have passed through the registering wickets, and have carried back with them, we venture to say, ideas which they will some time be glad to have acquired. During the past year the Museum has been so fortunate as to receive from the Archæological Institute of America the gift of the whole series of Greek antiquities obtained at Assos by the expedition under Messrs. Clarke and Bacon, comprising one hundred and fifty-six sculptured or inscribed pieces of marble or other stone, three hundred and forty pieces of pottery, twenty-seven of glass, three of gold, fifty-seven of other metals, and eight hundred and fifty-one coins. Considering that these are all from one of the most isolated and purely Greek towns of Asia Minor, the Museum is to be congratulated upon its possession of this collection, which for interest to scholars and archæologists is unrivaled on this side of the Atlantic. Besides the Assos sculptures, the Museum has received during the past year, unfortunately only as a loan, two noble Etruscan sarcophagi covered with sculpture of great force and dignity, which students of architecture, as well as of sculpture, who may have the opportunity, would do well to examine attentively, for their artistic as well as their historical interest. In the way of paintings, the Museum has been so fortunate as to be able to show through the whole or a part of the year both Regnault's Automedon and Bastien-Lepage's Jeanne d'Arc, two of the most renowned pictures which the modern French school has produced; and has acquired, by bequest from the late Thomas G. Appleton, one of its most devoted friends, three Troyon pictures, besides one by Constable, and a sketch by Tintoretto.

THE author of most of the novelties which made the Madison Square Theatre, in New York, so interesting, has introduced more of the same kind in the new Lyceum Theatre, in the same city, now in the hands of the decorators. The most conspicuous peculiarity about the theatre is, perhaps, the movable orchestra-pen, or rather pavilion, which is an ornamental structure extending across the whole proscenium opening, level with the stage, so that this, with everything on it, is concealed as effectually as by a curtain. While the setting of the stage is going on, the orchestra, multiplied by mirrors in the back of the pavilion, entertains the audience with the usual appropriate music; but when all is ready, and the prompter gives the signal, two curtains suddenly sweep across the front of the pavilion, and crossing each other, loop themselves up again at the sides of the proscenium opening. At the moment of crossing, the pavilion concealed behind them disappears, hoisted up among the "sky borders" by elevator machinery, and the curtains as they loop themselves up disclose the stage and the performers in the opening tableaux. How the orchestra, suspended in the flies during the acts, manages to express with propriety the agonies of the heroine on the stage, we are not informed, but this should not be a matter of much difficulty. Another novelty, not of a strictly architectural character, is said to be the form of the programmes in the new theatre. In place of coarsely printed and ungrammatical advertising broadsides, as they are in most theatres, or the pretty little cards of the Madison Square Theatre, the Lyceum programmes are to present the appearance of small ornamental batons about the size of a large lead pencil. Inside of the baton is a coiled spring, like that which is used to operate window shades, and the programme, printed on cloth, is coiled by means of the spring inside the little stick. If the owner wishes to consult it, he has only to pull a ring or knot of ribbon provided for the purpose, and draw out as much of the programme as may be necessary, letting it slip back into its case when he has read as much as he wishes.

WE are glad to see public attention called, by the testimony of the Chief of the Chicago Fire Department, in the inquest over the burning of the Langham Hotel, to the danger attending the placing of frames covered with telegraph wires on the roofs of buildings. In his opinion, as reported in the *Firemen's Journal*, the fall of the wall of the hotel, which took place in an incredibly short time after the breaking-out of the fire, and caused the death of several persons, was caused by the strain upon a frame standing on the roof, and supporting about forty telegraph and telephone wires. Although the telegraph companies deny the possibility of this, we are decidedly inclined to think that the Chief of the Fire Department is right. We have ourselves known a chimney to be pulled over by the wires which were attached to it at an angle, and have no doubt that similar accidents are much more common than they should be; and the unequal strain upon the walls of a building carrying a large number of wires must inevitably be felt in some way when the support of the floor-beams is weakened or destroyed by fire.

THE COTTON CENTENNIAL EXHIBITION AT NEW ORLEANS.



THE idea of a World's Industrial Cotton Centennial Exhibition emanated from the Cotton Planters' Association at its Convention at Little Point in October, 1882, where in pursuance of a suggestion of the President, it was *Resolved:* "That the Cotton Planters and Farmers of the Cotton States do have a World's Cotton Centennial Exposition, to commence in the year 1884, for in that year the availability of American cotton for manufacturing purposes was first practically demonstrated, and it marks the era when the cultivation of cotton for profit was first commenced in America."

Legal existence to the scheme was given by an Act of Congress, approved by President Arthur, February 10, 1883, of which the follow- is the preamble.

"Whereas, It is desirable to encourage for celebration the one hundredth anniversary of the production, manufacture and commerce of cotton, by holding in the year one thousand eight hundred and eighty-four, in some city of the Union — to be selected by the Executive Committee of the National Cotton Planters' Association of America, an institution for the public welfare, incorporated under the laws of Mississippi — a World's Industrial and Cotton Centennial Exposition, to be held under the joint auspices of the United States, the said National Cotton Planters' Association of America, and of the city in which it may be located, and in which cotton in all its conditions of culture and manufacture will be the chief exhibit, but which is designed also to include all arts, manufactures and products of the soil and mine. . . ."

The President at the meeting of the Cotton Planters' Association hereinbefore mentioned, was instructed to correspond with various cities of the States in order to ascertain the one which could offer the greatest inducements for its location. When the correspondence was received in reply to the President's communication it immediately became apparent how great the competition was between the various cities. However, the award of location was finally made to New Orleans, upon the assurance and pledge that a sum of $500,000 would be subscribed in that city.

This was done notwithstanding a very strong report made antagonistic to the selection by the President of the Cotton Exchange of New Orleans, and adopted by that institution: it is fair to mention this, because of the coolness of New Orleans towards the Exhibition is partly explained by it. In this same report it is estimated that $2,000,000 would be required to properly conduct a World's Industrial Cotton Centennial Exhibition, a calculation which turns out to be pretty correct, though it was imagined at the time that a capital of $500,000 would be sufficient.

For the site of the Exhibition Building, the management chose a tract of land known as the Upper City Park; the six miles distance from the city being, so to speak, compensated for by its vicinity to the Mississippi River, and by its capabilities for being converted into a handsome park with beautiful pleasure gardens.

Some time in the latter part of 1883, the Board of Management called for competitive drawings for a "World's Industrial Cotton Centennial Exhibition" building, and offering various premiums. It was stipulated that the building should have a million feet of floor space for exhibitors' use, exclusive of necessary offices for management, and the whole was not to cost more than a quarter of a million, or $250,000. Architects of reputation and standing naturally stood out of the competition, knowing how perfectly useless it would be to attempt to gain any architectural effect, or add laurels to their reputation, by designing a building which must either be a barn, or far exceed the proposed outlay. A cotemporary, however, which lies open beside me, refutes the above, stating: "Many were the architectural artists who essayed the solution of the problem, but it was not for a famous architect of some great far-away city to submit the plan that took the prize, but a man [a Swede] whose home was in a Mississippi town." However this may be, Mississippi must acknowledge that though she gives the architect a home, he brought to it from the land of his birth all he knows of his profession.

The result which he actually demonstrated was, the impossibility of erecting even a barn, and finishing it ever so poorly, for the small sum stipulated.

Early in March, 1884, the enormous building was commenced, without having previously provided steam communication with the city, or building a wharf with suitable approaches to the site of the Exhibition, by which water-carriage would have been made available. Some time in July difficulties arose, funds were exhausted, and the subscriptions promised were not forthcoming. The head, middle and bottom of the whole, Major E. A. Burke, Director General, proceeded to Washington, and met with unwonted success; a million dollars was voted for the affair. Upon receipt of the news, despair of completing even the main building properly (which never yet has been done), gave way to a species of madness which appears to have seized the management. First it was deemed necessary to build a special house for the Government and State's Exhibits, then an art hall, then a building for the exhibition of the process of sawing logs of timber, another for showing the manufacture of bricks. *En passant* let the reader here be informed that the manufacturers of bricks were, and are still indignant at not having had space in the main building, protesting that the art of brick making, descended from the era of the Pharoahs, may now be conducted in a drawing-room without detriment to its contents or carpet. Even the vast extent granted to machinery was now found not to be sufficient, and a huge iron barn, built out of remains of the Philadelphia Exhibition, was added to the main building, projecting like some horrible excrescence to give additional space for the never ending Olivers asking for "more."

An exhibition on such a scale should never have been contemplated by an impoverished city, far away from the centre of population. Had the original idea as promulgated by the President and Cotton Planters' Association been carried out, namely a Cotton Centennial Exhibition, at which the industries of the cotton-growing sections of the United States, might have been witnessed, and an opportunity given for the cotton planters of the South to show the world what they could do, and what progress they had made, then the results would have been of a very different kind.

Now there is a barn, or rather a series of barns, crammed full with "fakirs" selling pretended products of countries, which the articles thus sold have never even seen, interspersed here and there with some piece of machinery, interesting, and well worth examining, or beautiful display of some valuable and artistic household commodities, from which one's attention is immediately drawn by cries of "A stagnant drop of water, see what it contains!" "Try your weight, sir, only five cents!" "Have your silhouette, sir, only twenty cents."

The building in itself is no doubt a success, and had it been finished as intended would have been a grand one, but (and how much lies behind that little word) it is not nor ever will be finished, and it is and always will be a huge barn. The general arrangement and proportions are tolerable, but are spoiled by being enclosed in a ginger-bread attempt to make an Italian Renaissance out of matched and beaded sideing and galvanized-iron, elaborately ornamented [?] with mock towers and sham roofs. These latter would certainly have proved less an eye-sore had some judgment been exercised in returning the sides sufficiently to impress the spectator with the idea that they were solid. The result calls to mind the effect of looking behind the scenes at a theatre, when all the beautiful solidity of masonry disappears, and is replaced by dirty canvass and very small scantlings.

The main building is approached, after a most tedious ride from the city (a crushing objection to the prosperity of the fair), by a long sweeping curve, designed apparently to spoil the only chance of a view of the façade of the neighboring Government or State's Exhibit Building. Regarding the main entrance, little can be said, except that from it the state of the whole buildings may be arrived at, viz., that they are unfinished, and architecturally speaking decidedly poor.

Having entered, the vastness of the structure strikes the spectator, and its want of relief is immediately apparent. Where are the needful projections to produce even a small effect of shadow? Nothing but three great semi-circular openings with a profound shadow. Montesqeiu has it, "Ornaments fatigue by their littleness, and are sometimes so confused that no part can be distinguished from another." A celebrated architect, now long since dead, on being asked what he thought of Paris, replied, "It is a pudding all made of plums." Here on this main front there is not only a painful lack of ornament, but entire want of shadow. The eye searches in vain for a change from the perpetual up and down, and horizontal lines, which, as one stands in the centre, seem to continue indefinitely on either side into space. The same objections apply to both sides. However, the eye seeking wearily for something to fill it, naturally rests on a piece of statuary colored to imitate bronze, which stands immediately over the main entrance in a recess about one-third too small for it; and one is astonished at the painful foreshortening of the whole group, until upon closer examination it turns out to be a wonderfully good copy of the "America" which stands at one of the four corners of the Albert Memorial, Hyde Park, London. This copy is wonderfully good and exact, but the manufacturers have to thank the architect for placing so good a work of art, intended to be on a level with the spectator's eye, at an elevation of over 40 feet, thus mangling every detail by the inevitable foreshortening.

A few general items, taken from the publications of the management, may here prove of value. "The main building is the largest ever

erected. It is 1378 feet long by 905 feet wide, without courts, and has a continuous roof composed largely of glass, so as to afford an abundance of light without subjecting the interior to the direct rays of the sun. Within the view is unobstructed. From one side or corner of the building to its opposite, the interior showing all phases of industrial activity is seen. There are no partitions, and the lofty pillars wide apart, supporting the roof structure, present no impediment to one's vision, but only serve to assist the eye in measuring the vast expanse. The interior is surrounded by wide and spacious galleries, 22 feet high, which are reached by twenty elevators[1] having the most approved safety appliances, and by convenient stairways.

"The machinery department occupies a space of 1378 feet long by 350 feet wide, within the main building, and has an extension added in iron 320 feet long, and 150 feet wide [it is 120 feet], for heavy machinery, described under the heading of Cotton Annex.

"The main building contains general exhibits. It is situated about in the centre of the park. The plan of the main building is arranged in a series of sections. In the centre we have the Music Hall, with galleries round both sides, and at rear, access being gained to them by a stairway right and left of entrance to hall. Starting from right, we have the same on left; we have four bays or sections of 20 feet span each, the two inner ones are carried up sufficiently high from the other two to admit of sashes being placed for light. We have then a series of spans, viz.: 37 feet 6 inches, 50 feet, 75 feet, 50 feet, 37 feet 6 inches, and 20 feet; and then the same repeated, viz.: 37 feet 6 inches, 50 feet, 75 feet, 50 feet, and then the galleries, with a width of 37 feet 6 inches, with a row of posts in centre. Starting lengthways we have the galleries, which run round the whole building, at 50 feet, at 75 feet, 50 feet spans then the whole length of Music Hall with gallery, and then same repeated in rear, viz.: 50 feet, 75 feet and 50 feet spans, 37 feet 6 inches gallery, then four sections of 20 feet span each."

Concerning the outside a few general remarks must suffice, although pages might be filled with criticisms of an unfavorable character. Looking up at the tower, the question arises, What are those holes cut through the very roof, and lessening the appearance of the already weak mansard construction? They are to allow the sounds of the bells (a remarkably fine peel, by-the-by) to escape, but surely for the sake of professional dignity and reputation it would have been worth the architect's while to have repeated the belfry opening he has placed on one side, though it were done at his own expense; or using his professional powers, he might have induced the management to have built a small belfry somewhere, which would have proved an addition of great value to so long a stretch of straight lines. There is on this tower an ugly excrescence which looks like a smoke-shaft, but turns out to be the roof of an elevator. In regard to the detail of the outside, one most important point is taught, namely, that it is not safe to use green siding rebated and beaded with a vertical joint. The whole of this structure had to have the joints covered with laths on the inside to keep out the weather, and this only a few weeks after the siding had been placed in position.

The double parapet has a very inartistic effect, to the eye brought up surrounded by the best examples of Renaissance style.

The bottom moulding (that is plinth) of the pilasters, which are supposed to carry the cornice in front, is made to project over the pedestal; an original idea to throw off the rain. What would a Palladio say to this? The architect evidently makes a free interpretation of the author, who speaking of an architect's duty says: "It is to explore the treasures with which the vestiges of antiquity and the best works abound, viewing them not as documents and patterns merely, but as invaluable manifestations of mind in which may be read the very thoughts of their authors, and where may be found the reasonings upon which they acted, thence deducing principles and rules for controlling and directing those exuberances of fancy with which he who hopes to become a great architect should be gifted." The architect now under notice must have neglected to put a curb on his exuberances.

The effect of the outside coloring is extremely sad and timid; thus an opportunity has been lost of making up somewhat for the want of light and shadow. The color, a mixed salmon and white, is decidedly weak, and renders the long horizontal lines of the cornices more conspicuous than ever. The flags, of which there are a good number, give bright bits of color to an otherwise cold, coarse front. Had they been the proper size, they would have proved still more effective. The balusters surrounding the flagstaffs, although of the ordinary stone shape, are cut out flat, losing thereby all the charming effects of the shadows of the rounded ones; but luckily they are a long way off. The architect might surely have arranged matters with the Chief of the Fire Department, so that the ugly fire-patrol barrels for water might be placed where they could not be seen, instead of parading them in the centre and flush with the eaves of the roof.

An impression once formed is difficult to get rid of, and it must be admitted that no matter what was to become of the minor entrances, the main one should have been finished; the rafters ought to have been ceiled and a coat of whitewash given to the trusses where they are exposed. This would have done wonders; in fact it is not too late to do it yet, and the cost would be amply repaid by the effect.

Entering through swing doors badly hung on weak springs, which are already yielding to the little use they have had, upholstered in the gloomiest of all colors, black, which is nailed by bright tacks, thus increasing the sepulchral effect; passing under the galleries, one passes on to the centre of the seventy-five foot span, and here is the only chance of a vista right and left, clear down to either side. The immensity of the structure is visible, but is decidedly spoiled by the narrowness of the aisles, only some fourteen or sixteen feet wide. This one aisle should have been left entirely clear, with perhaps some few groups of statuary, not high enough to spoil the view, and maybe a fountain or two, with seats on either side, which would have formed a promenade and general rendezvous. The band could sometimes have played here. Then every visitor would have been struck with the size and importance of the Exhibition. Going still farther forward, one enters the music-hall, the masterpiece of the whole building, the proportions and construction of which atone somewhat for its bare and unfinished state.

The width of the hall is 50 feet in the clear, that is to the galleries, which are 32 feet in width, and which run down either side and are continued round rear of organ-chamber. There are fourteen arches, 20 feet apart, constructed of two thicknesses made up of one-inch plank, eight inches wide, of which there are ten in number. These are securely nailed, and of course so that each breaks joint; the two thicknesses are then securely bolted together with a clear width of 3 feet 6 inches between them, by one-inch wrought-iron bolts, with diagonal and horizontal braces, out of 4″ x 4″ stuff, at a height of 22 feet from the floor; the same construction is carried down, but straight. The foot is securely braced by a framed support, or what might be called buttress, spreading out at the bottom fifteen feet and bolted through the whole distance with iron bolts. Thus the height to the top of arch is 72 feet. On the top is placed a skylight with side-lights; the skylight is glazed with amber, red and blue colored glass, which has a very pleasing effect. About half-way up the arch there is another row of sashes, so that the hall is admirably lighted, though it is at its best at night, when it is lighted up with innumerable incandescent lights, which give a warm glow to the whole.

It may prove interesting to know that each of these arches were framed complete, and were hoisted into position by two derricks and two cranes, the latter being on the gallery-floor level, and the power used is manual.

At the end of this hall is a raised platform, with room to seat six hundred musicians and singers, and at rear of this is an organ-chamber, which is now filled by a handsomely decorated organ of chaste design, the advent of which has proved a great boon to visitors, supplying the want of music, which on some occasions has proved such a drawback.

This is the largest hall in America, and the architect and his assistants may be well proud of it. The only blemish is that from the greenness of the lumber used, all the arches have broken-backs. This is only apparent to the professionally critical eye, and might be hidden by the judicious introduction of drapery.

With the music-hall ends even the constructional cleverness of this famous structure covering over thirty-three acres. Alas, no longer does symmetry or regularity prevail. Posts requiring braces, and extra posts requiring iron tie-rods proclaim to the practical eye the advent of weakness. Here at one angle are three posts strapped together, and at the other three angles only one. Here we find a fourteen-inch and next to it a twelve-inch or even an eight-inch post. Where there should be one there are two, and why? If the post in one case be sufficient to carry the weight, it surely should be in the other. If the fault was in the lumber, why not have taken the defaulter out and replaced it?

The lighting of the interior, which is entirely by sky and side lights, is as nearly perfect as can be, and the architect was wise in introducing the panels of sheathing between the lights, as it relieves the eye from what would otherwise have been a continuous glare.

The construction of the roof is very simple and strong, though the braces under the tie-beam of a framed truss seem to be unnecessary and liable to fall. The roof is very similar to the roof of the St. Louis Exhibition, the foot of the principal being here as there raised some five feet from tie-beam.

The following is an approximate list of materials used in the main building:— 9,809,500 feet of lumber; 312,200 feet of glass; 301,600 pounds of nails; 226,356 pounds of wrought-iron; 36,920 pounds of cast-iron.

An interesting item is the following: that the whole of this huge edifice was finished and fit for exhibitors ten months after its commencement, and this where the difficulties of transportation were almost unsurpassable, and where mechanics and laborers are not celebrated for an exuberance of energy.

In conclusion let the poet speak:—

> "Rude is this edifice, and thou hast seen
> Buildings, albeit rude, that have maintained
> Proportions more harmonious, and approached
> To somewhat of a closer friendship
> With the ideal grace. Yet as it is,
> Do take it in good part. Alas! the poor
> Vitruvius of our village had no help
> From the great city."

---

[1] Out of the twenty elevators as far as can be ascertained, only one or two have ever been used. The rush of spectators to the galleries never having been so great as the management looked forward to.

THE DELLA ROBBIAS.[1] — III.

Medallion by Andrea Della Robbia from the Hospital of the Innocents, Florence.
(From *L'Art.*)

I have tried to explain the essential quality of Luca Della Robbia's art, and now must speak as briefly as possible of its technical character as shown in one or two representative examples.

More even than other sculptors of his time, Luca preferred the relief to the statue in the round, and while they usually loved all its varieties with equal affection, he seems to have confined himself to a single one. We can imagine no kind of relief that was not brought to technical perfection early in the fifteenth century — none from the very highest to the very lowest. "High-relief," I may explain, implies that certain portions of the figures are entirely freed from the ground, are in fact worked in the round. When this is not the case, but when the most prominent portions are shown in more than half their thickness, then we speak of "middle relief," and anything flatter than this is "low-relief." For low-relief the Italian Renaissance sculptors had a peculiar liking, and that extreme variety which is called *bassissimo-relievo* was in truth an invention of their own. This variety has so slight a projection that the theme does not so much seem to be carved out of the material as to be an efflorescence, nay, an exhalation from the surface; yet within its delicate salience all the necessary modelling is done with exquisite perfection. Neither Greek nor mediævalist had used this *bassissimo-relievo;* no one but the Assyrian had employed it in its pure form, uncombined with any more prominent passages, and unhelped (as was the low-relief of Egypt, by either deeply-incised lines or a sunken field. And from Assyria had come, of course, no lesson to the Italians of the Renaissance.

If we look at the cella frieze of the Parthenon, we see middle-relief; if at its metopes, high-relief, and we find that in each case the chosen plane is used by itself and without admixture. But if we look at Italian reliefs, we find very often that more than one plane is used in a single composition. When we speak of the use of a single plane, be it understood, we do not mean that all the figures represented are given of necessity an equal degree of salience; but we do mean that there is only a very small difference in their relative distances from our eye; that the background of stone or bronze is confessed as such; that no perspective effect is desired; in a word, that the group is conceived as a piece of sculpture, partly disengaged from the block, instead of wholly disengaged as in work executed in the round. By the use of more than one plane we mean, on the other hand, that some conspicuous degree of distance separates the nearest from the remoter figures; that all do not form a single group; that the background is nowhere left as mere palpable material; that perspective effects are aimed at throughout; in a word, that the relief is conceived not as a true piece of sculpture, but as a more or less fully developed picture. Its figures decrease in size with their recession from the eye, as is the case on canvas; landscape or architectural details fill up the background and explain the composition, while for the ever-lessening intensity of color and sharpness of outline with which a painter completes his perspective illusion, are substituted different planes of relief and different degrees of definiteness in modelling. This is the system so largely employed by Renaissance sculptors, a system some tentative approach toward which had been made by the Assyrians, for example, and by the Romans, but which had never before been carried to its utmost possible limits. We hardly wonder that it tempted these fifteenth-century Italians, their love of realism was so strong, and their genius, as compared with the purely plastic genius of the Greeks, was so essentially pictorial.

To see the utmost limits to which it might be pushed, we have only to look at Ghiberti's later and more famous baptistery doors. We do not even try to count and distinguish the planes of his relief; they pass one into another by so many and such insensible gradations. We almost forget, indeed, that we are looking at sculptured work, so truly pictorial is the aim and the result. Yet almost in spite of himself, as it were, Ghiberti remains a great sculptor through it all, so great a sculptor that we can hardly bring ourselves to say that he sinned in overpassing the true limits of his art — so great that he tempts us to throw all theories to the wind and say: Let each artist be a law unto himself. But it is only artists as great as he who may permit themselves such liberty, and then, superb though their own results may be, their example is sure to be pernicious: a remark which is just as true of Ghiberti as it is of Michael Angelo. When lesser men work after the pattern he had set, then we begin to see its faults, then we begin to see how difficult it is, except for a Ghiberti, to realize any high artistic excellence when trying in sculpture for those qualities which are the province of the brush; to preserve charm of line and modelling, clearness of intention, balance, coherence and harmony of parts, and unity of effect, while securing — and this in a necessarily imperfect way — the charms of varied grouping and the illusions of perspective.

It must be counted as great praise for Luca Della Robbia when I say that, strongly though he felt Ghiberti's influence in other ways, he was never tempted by his example beyond a truly sculpturesque treatment of his reliefs. I think I am right in believing that he never used more than one plane at once, and I know I am right in affirming as much of all his most characteristic and most famous works. He always had a plastic, not a pictorial ideal in view, and, moreover, almost always that sort of a plastic ideal which is peculiarly the ideal of the relief; that is to say, which reckons upon the help of light and shadow for an important part of beauty. Strangely enough, Messrs. Molinier and Cavallucci speak throughout of his work as being bas-relief. In truth his chosen style was high-relief, and, so far as I have seen, he never used a really low variety.

The famous organ-tribune is in very high relief, admirably managed for charm of line, for balance of parts, for clearness of form, for play of light and shadow, and for all the variety in composition which can possibly be wrought with the legitimate use of a single plane, and it is finished throughout with an exquisite nicety which yet does not injure breadth and unity of effect. Placed near the eye as its slabs now are in the Florentine Museum, and considered, so to say, intrinsically, their handling delights us much more than the bolder, sketchier treatment of Donatello's corresponding series. But if they were all in their true position, in a darker place and well above our heads, it is possible that Donatello's would prove him to have been the wiser workman; but there is no other comparison to be made between the two series which does not most unquestionally redound to Luca's credit. Their themes are quite alike: groups of children varying in age from infancy to adolescence, who are singing and playing on many instruments, and sometimes dancing to the sound. Donatello's are admirably faithful, vigorous and delightful transcripts from Nature, but they are little else. Luca's are just as faithful — his figures are just as simply childlike, just as spontaneous in movement, just as diversely individual — but their realism is more reticent in expression, and is joined both to great plastic beauty and to a strong, genuine and appropriate sentiment. There is no token in Donatello's children that they are making sacred music; but no one can look at Luca's and mistake the fact. Devotional feeling is clearly expressed throughout, though varied with exquisite subtlety in accord with the age, the occupation and the individuality of each little figure. Its highest expression is in the group of older boys who are singing, quietly absorbed in their task, as they look over each other's shoulder at their book. But it is not lacking even in those groups which are in the strongest contrast with this — those where little children are dancing in a joyful, almost thoughtless mood.

The first-named group shows, perhaps, some slight lingering trace of the Gothic manner of the preceding century. It is a little monotonous, although very noble in line, and the delightfully *naïf* realism of its faces is gained by some slight sacrifice of beauty. But in many of the other groups we find the purest plastic perfection: a truly classic freedom and grace of movement, and a truly classic charm of physical type. Great is the difference, I think, between them and Donatello's reliefs. These last are very true, very fresh, and in their way very delightful; but they do not show us complete purity of line, perfection of form, or a finely-balanced harmony in composition. In Luca's, on the contrary, there are many passages which no Greek need have disavowed.

Of course we must remember that we are judging Luca by his best work and Donatello by a work which is far from his best, which could not have been his best, since its theme was not in accord with the most strongly marked side of his talent. And yet something of what we must say in comparing these individual works, we may say in comparing the two sculptors in all their works. It is true that Luca falls behind Donatello in many ways; but it is also true that he is more sure to delight us with pure plastic beauty, and much more certain to move us with a clear spiritual meaning.

Luca's bronze door to the sacristy of the Florentine Cathedral is undoubtedly one of his finest works; yet it is, I think, one of the

[1] Continued from page 148, No. 482.

least well-known, possibly because it has been somewhat overshadowed by the greater size and prominence of those baptistery doors near by which were wrought by Giovanni Pisano and Ghiberti. When I say that each of its ten panels shows a single seated figure with an angel on either hand, I say, of course, that the whole reveals far less of inventiveness, of bold imagination, than Ghiberti's and Pisano's portals; but the quiet harmony, the essential unity thus as art. It is portraiture made beautiful by feeling, too; it is a piece of true Christian idealism.

At the time of Luca's death, his nephew Andrea had already long been famous; but his activity was to last much longer still, and was to result in an infinitude of works, among which it is not always possible to distinguish those which were his own from those which were due to sons and scholars laboring with him in one of the great busy

Medallions by Andrea Della Robbia from the Hospital of the Innocents, Florence.
(From *L'Art.*)

secured are not qualities to be underrated, and when we examine the different panels and see the real diversity which underlies their similarity, we perceive that, though very reticent, artistic imagination is by no means lacking. Nothing could surpass the delicate, all but excessive care with which the reliefs themselves and the heads in the medallions of the border are carried out; Luca's training with a goldsmith here shows very plainly. Yet few even among Renaissance reliefs can equal his in their harmony of line, in their truly sculpturesque conception, in their dignity and serenity, and still fewer in their depth of Christian sentiment. No one who studies this door will again call Luca a merely graceful, amiable, charming artist — will deny him his own place, a high place though not one of the very highest among those contemporaries whom we recognize as lofty, noble, great.

When he turns from bronze and marble to enamelled clay, Luca's sentiment and his strong plastic instinct remain the same, but we must no longer look for so acute a realism or so refined a technical language. Everything had to be broadened and simplified, in view of the necessities of the new material, of that covering enamel which, thin and pure and supple though it was, could permit no such sharp precision of line, no such subtile delicacy of modelling as could bronze or marble. And therefore I say that from one point of view it seems a pity that he should ever have discovered his new process. Beautiful as is such a work, for example, as the tympanum of the church-door at Urbino, with its half-lengths of the Madonna and four adoring monks, and its full-length of the Child, who stands before his mother on the edge of the relief, it would have been still more beautiful had marble been the medium. And the color, which adds such a value from the decorative or architectural standpoint, adds nothing, it seems to me, from the purely plastic.

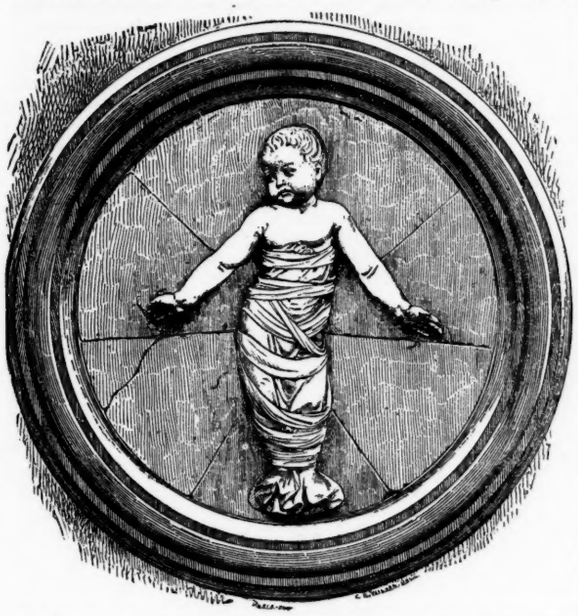
I think I was justified in saying above that Luca always and everywhere renders a distinctly Christian sentiment in a distinctly legible way; for the instances are so few as to be very unimportant where he falls into a merely gracious realism. A realism which is hardly even gracious marks, indeed, his five bas-reliefs on the Florentine Campanile; but these Luca worked either from the actual designs of his forerunners in the task, or under a constraint to make his results match in theme and character with theirs. And there is, perhaps, one of his Madonnas — that in the tympanum of the Via del Agnolo in Florence — which, by contrast with his typical examples, we may call nothing more than a beautiful human mother. But I know of no other exceptions; for the only portrait-statue which he has left us (on the tomb of the Bishop of Fiesole), while it is admirably clear and personal in its portraiture — no likeness of the time could well be otherwise — is yet imbued with the artist's own characteristic sentiment. Compare it with other contemporary sepulchral figures, and we shall not call it, as we do call many of them, a piece of mere faithful portraiture, or of portraiture merely made beautiful ateliers so characteristic of the age. His legacy in other materials than enamelled clay is so small that it need not detain us here: much more rightly than his uncle he may be identified with the new process. Technically he seems to have made no effort to develop its possibilities; he was satisfied with blue and white for his main effects, employing only in minor details and in his borders that fuller polychromy of which later so wide a use was made. But he adapted the art to an ever-lengthening list of objects, and made it indeed a helpful handmaid to the architect. Luca modelled reliefs for tombs and tabernacles; tympana, rosettes, medallions and tiles for wall and ceiling; and at least once a pair of figures in the round. But from Andrea's atelier came not only all of these in abundance, but whole tabernacles, great pictorial retables, vases, candelabra, friezes, fonts, pulpits and fountains. His work is also more ambitious in its use of many figures, and of much diversity in action and arrangement; but he is an inferior artist to Luca, and not only because he worked from Luca's inspiration, rather than from his own.

To begin with he is much less strong. The original ideal still persists, the original sentiment is still preserved, but with on the one hand a less elevated accent, and on the other a less forceful realism. Sometimes indeed we have no fault to find. Sometimes, when the theme is simply tender, it is hard to see much difference between Luca's art and his; but very often — and more and more as the years passed on — Luca's delicate feeling got a touch of sentimentality; his grace of line lost a little of its nobility; his simplicity became almost self-conscious. The early sweetness remained; much of the early strength and frankness had evaporated. And so we care most for those among Andrea's works where strength was least required. He has left us nothing better, I should say, than his many simple figures of the Madonna with her child, or than the famous medallions on the outside of the Hospital of the Innocents in Florence; those dozen of delicious babes in swaddling clothes, each of whom is so perfect in beauty and truth, yet each of whom has so distinct a little individuality of his own, quite different from that of his tiny brothers. But after all, such art as this, naïve and delightful though it be, is not art of the height and meaning Luca produced when he carved the children of his organ gallery.

Andrea's art again, became more decorative, less purely sculptural through the greater prominence he gave to the bordering of his reliefs. Luca's are commonly set in a very simple frame composed of delicately-designed mouldings, the classic style of which strikingly proclaims the extinction of Gothic art. He occasionally added also a second border; for example, of foliage; but Andrea increased the frequency and the importance of this, modelling it in very high relief and in very realistic forms of growing plants or garlanded fruits and flowers. When, as often, such a border is made so conspicuous as to overshadow somewhat the relief itself; or when it is used without any architectural motives at all and by itself builds the frame,

then we recognize, I think, a slight decline in taste. In necessarily architectural examples, however — as in his great altar-pieces — Andrea's framework is often most charmingly proportioned and designed. But here, too, certain elements occur at times which, while they aid the richness, detract from the purity of the result. For example, he often adorns his architecture with rows of detached cherub-heads, intrinsically delightful, but architecturally rather out of place.

From all of this it may be understood why it was that I said the beautiful reredos at the Metropolitan Museum [1] in New York should be attributed to Andrea, not to Luca Della Robbia. Neither historical nor critical evidence can with the least confidence assign a simi-



Medallion by Andrea Della Robbia from the Hospital of the Innocents, Florence. (From *L'Art.*)

lar work to the earlier master. But there are very many retables which are known to be Andrea's, and among them two or three with the strongest likeness to our own. Every characteristic speaks for Andrea — the nature of the work itself; the design of the architectural setting, in which the cherub-heads are introduced; the many figures and diversified action; and the slight lack of strength in expression and form we cannot but note when we draw a comparison with a typical Luca. But it is a very fine, pure and characteristic example of Andrea's art — that is to say, of the school when it was in its fullest development, and ere the period of its real decline had begun. There is no possible reason why we should attribute it to a later hand than Andrea; but, there is every reason — if criticism in art means anything at all — why we should *not* attribute it to Luca's. Judging from a photograph our authors call it a "precious" possession. Such it is in truth; one which would be a treasure to any European museum; but being such there is all the less necessity to claim for it any interest or value not properly its own.

M. G. VAN RENSSELAER.

THE ILLUSTRATIONS.

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

THE GRISWOLD MAUSOLEUM, TROY, N. Y. MR. R. W. GIBSON, ARCHITECT, ALBANY, N. Y.

THE Mausoleum is at Oakwood Cemetery, near Troy, N. Y., built for Mrs. John A. Griswold, of Troy, N. Y., by the New England Granite Company. It is of Westerly granite, of warm gray color, part rock-faced and part tooled; capitals are carved. The roof is of red tiles and terra-cotta. The entrance is a round arched opening in the massive wall, fitted with a handsome wrought-iron sliding grille and a panelled door of oak. Internally the walls are lined with a dado of polished granite, in slabs, of two colors, anchored to the walls with bronze bolts with decorated scroll heads. Above this the walls are of red pressed brick, with moldings of carved bands in terra-cotta and a frieze of dead bronze color. The roof is of oak in open timbering. The floor is of polished marbles in geometrical pattern. An oblong opening in the floor, fitted with a movable wrought-iron railing, shows the crypt and tablets below, and a stone stair in one of the recesses gives other access to it. The windows will be fitted with memorial stained-glass. The design is copyrighted.

HOUSE, FOR REV. G. P. VAN WYCK, CHAPLAIN, U. S. A., WASHINGTON, D. C. MR. JAMES G. HILL, ARCHITECT, WASHINGTON, D. C.

THE exterior of this house, which will cost about $15,000, is of ordinary brick, selected reds.

DESIGN FOR A CITY HOUSE. MR. E. R. TILTON, ARCHITECT, NEW YORK, N. Y.

SCHOOL AND CHAPEL BUILDING FOR THE CONNECTICUT INDUSTRIAL SCHOOL, MIDDLETOWN, CONN. MESSRS. J. D. SIBLEY & SON, ARCHITECTS, MIDDLETOWN, CONN.

CHURCH OF THE ASCENSION, PUBLIC HALL, AND SUNDAY SCHOOL, GREENPORT, N. Y. MR. R. W. GIBSON, ARCHITECT, ALBANY, N. Y.

ENAMELLED TERRA-COTTA, BY LUCA DELLA ROBBIA, AND THE RETABLE, AT THE METROPOLITAN MUSEUM OF FINE ARTS, NEW YORK, N. Y.

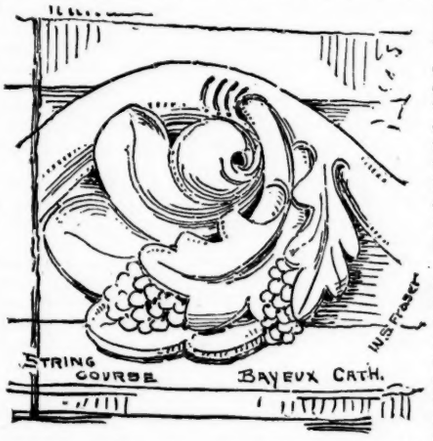
For description see article elsewhere in this issue.

COMPETITIVE DESIGN FOR BARN, SUBMITTED BY "*Asmodeus.*"

THE GROTTO OF POZZUOLI, NEAR NAPLES, ITALY.

This subterranean passage-way which leads from Baiæ to Averno, and known variously as the Grotta della Sililla, Grotta del Cane, Grotta di Posilipo, etc., is supposed to date from the time of Nero, and by some is said to be due to the incantations of the poet Virgil. In the fifteenth century Alfonzo I, sunk the floor to its present level, and in the following century Don Pedro di Toledo paved it and built the two air-shafts which ventilate it. The grotto is 2250 feet long, twenty-two feet wide, and twenty-five feet high at the entrance, which height increases to sixty-nine feet at the centre.

PHOTOGRAPHY IN THE PRINTING-PRESS.[1] — II.



IT may be well to refer here to some methods which are coming into use for mechanically converting photograpic subjects with half-tone into lines or dots, in place of making them by hand.

These methods have always run in one direction; that is, in efforts to break up the half-tone, or shading of the photograph, either by chemical or mechanical means, into a series of lines or dots. Directly this can be satisfactorily done, all photographic subjects are available for the ordinary methods of printing, by means either of photo-lithography or photo-engraving.

Photo-gravure is a process by which a copper plate is prepared, by photographic means, for printing by the ordinary method, in a copper-plate press. In a copper-plate the lines are engraved or cut into the plate. These lines are filled with ink by a dabber, which dabs the ink into them, that which is left on the surface of the plate, and not in the engraved lines, being cleaned away with rags and the palm of the hand. Paper is laid on the plate, and the ink is transferred by heavy pressure from the plate to the paper. Where large masses of shadow occur, some device has to be used to hold the ink, which otherwise would be cleared out by the rag and hand in cleaning. The shadows have therefore to consist of a series of cells, formed by cross-lines which make a tooth or grain, so to speak, to hold the ink and prevent its being wiped out in cleaning up.

In the photographic method of making a copper-plate to print from, let us begin at the wrong end. Instead of engraving on a sheet of copper, let us manufacture a sheet of copper on a photograph. Copper can be deposited on gelatine in a battery, to any desired thickness. Let the gelatine be a bichromatized sheet, on which an

[1] Quoting Dr. Oscar Berggruen of Vienna, Messrs. Molinier and Cavalli ecl describe the Metropolitan Museum reredos in the following terms: —

"Large retable. 'The Assumption.' In the centre the Virgin, seated on clouds, her hands joined, rises to heaven amid a glory of cherubim, while to the right and left float four groups of angels sounding on trumpets. Below is the sarcophagus of the Virgin ornamented with rosettes and filled with flowers. On the left, stand in ecstasy St. Augustine and St. Francis; on the right, St. Bernard of Sienna, and another monkish saint. Two pilasters, decorated with graceful candelabra, support a frieze ornamented with seven heads of cherubim. The tympanum, in the shape of a depressed arch, contains two floating angels bearing a crown. Figures enamelled in white on a blue ground, which is of a lighter tint in the *mandorla* around the Virgin. The style of this beautiful retable recalls the 'Coronation of the Virgin' in the Osservanza Convent at Sienna; the bas-reliefs at La Verna (especially the 'Madonna of the Girdle'); and the 'Coronation of the Virgin' in the Academy of the Fine Arts at Genoa. With every probability, therefore, one may attribute it to Andrea Della Robbia.

"It comes from Piombino where it adorned the main altar of the church. It was taken to Florence in 1830, and purchased a few years ago by an American, who generously presented it to the New York Museum. M. di Cesnola, director of this Museum, has placed it in a separate apartment where are shown a large number of photographs from the works of the Della Robbia family."

[1] A lecture recently delivered before the Boston Young Men's Christian Union, by Mr. Ernest Edwards. Continued from page 151, No. 483.

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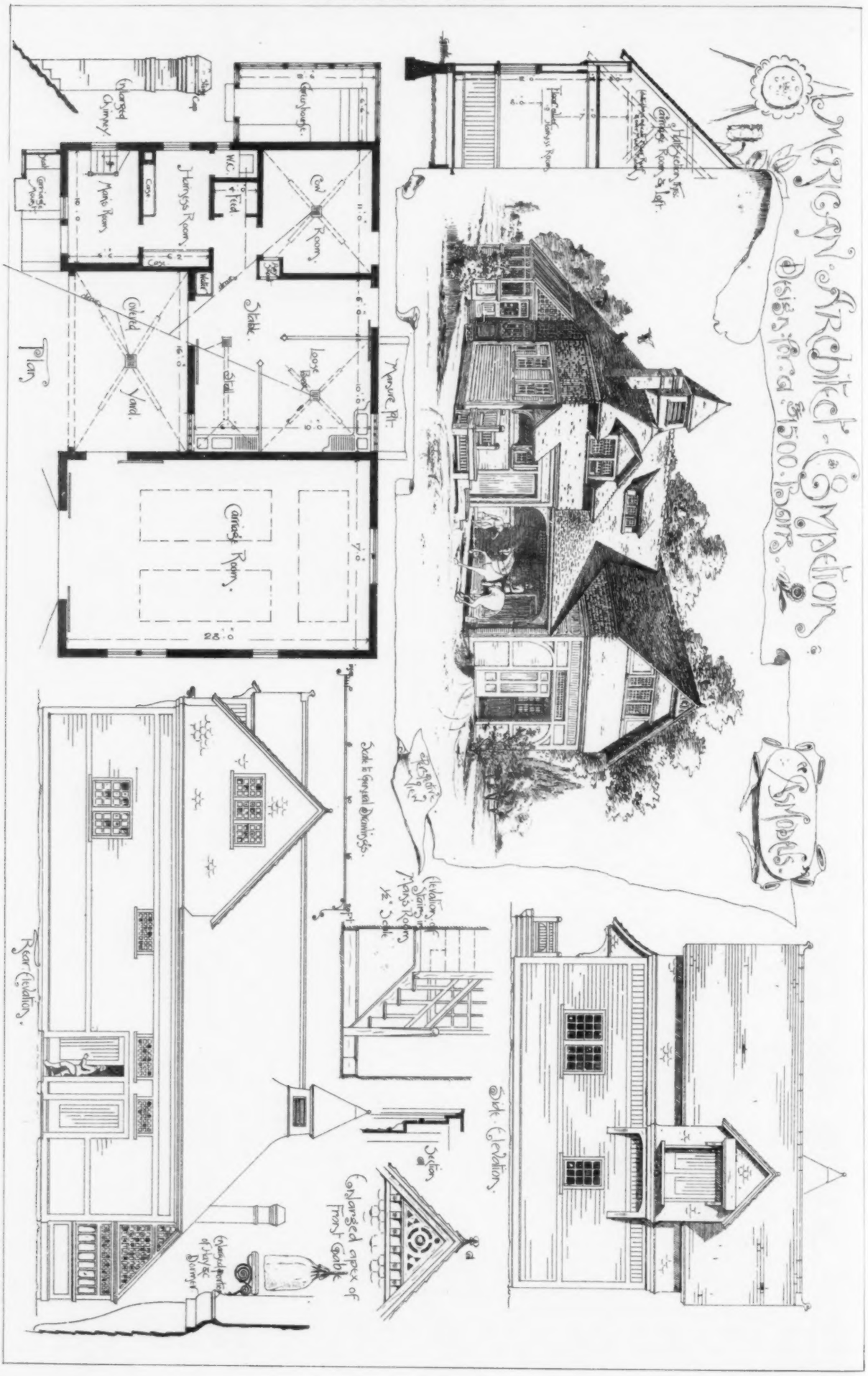

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CHURCH OF THE REDEEMER, CRESCENT, NEW PUBLIC HALL & SUNDAY SCHOOL. Robert W. Gibson, Arch't.

THE GRISWOLD MAUSOLEUM
OAKWOOD CEMETERY, TROY N.Y.
ROBERT W. GIBSON
ALBANY N.Y.

PLAN OF CATACOMBS

CHAPEL PLAN

SECTION

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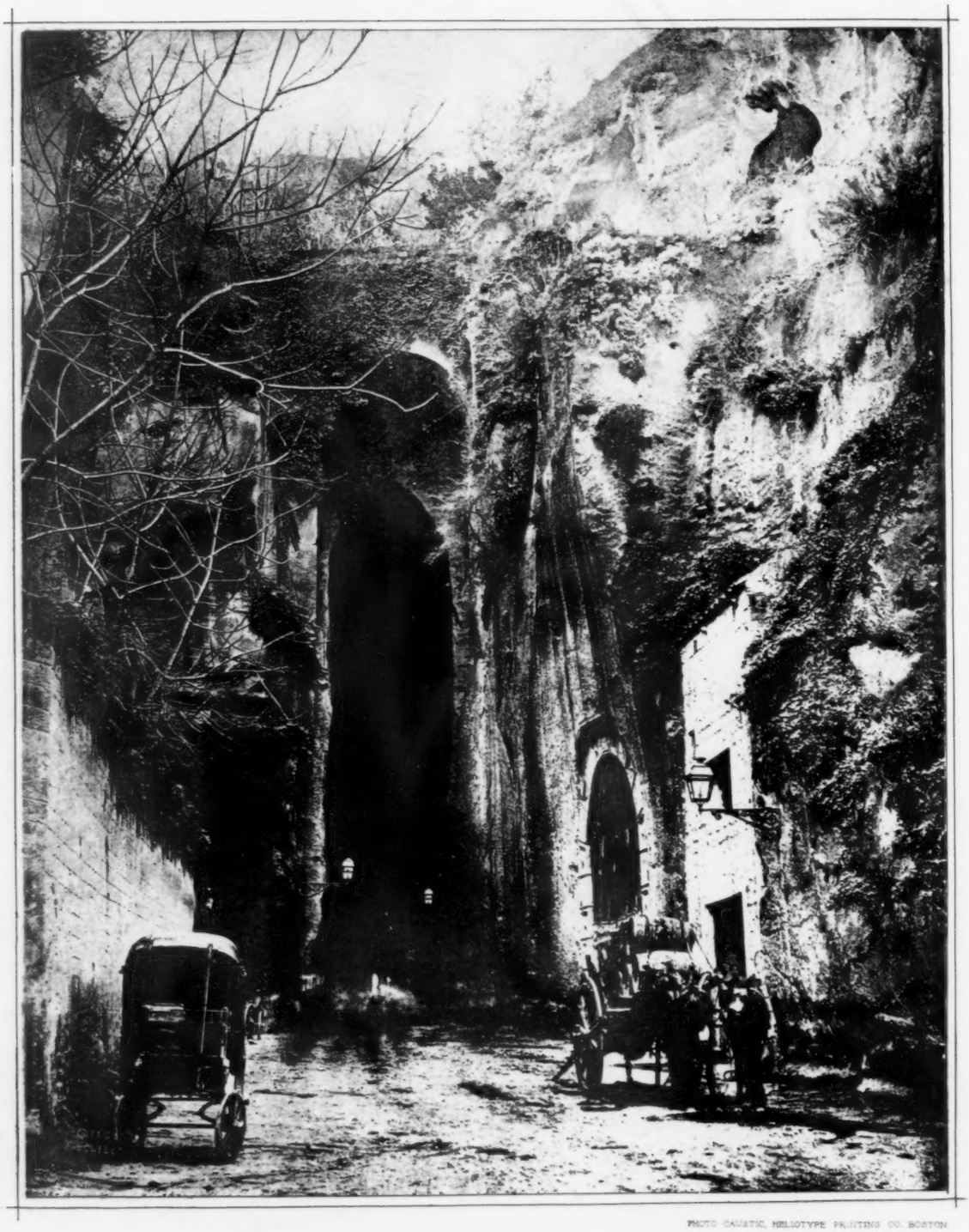

PHOTO CAUSTIC, HELIOTYPE PRINTING CO. BOSTON

The Grotto of Pozzuoli, near Naples.

Metropolitan Museum of Art, New York.

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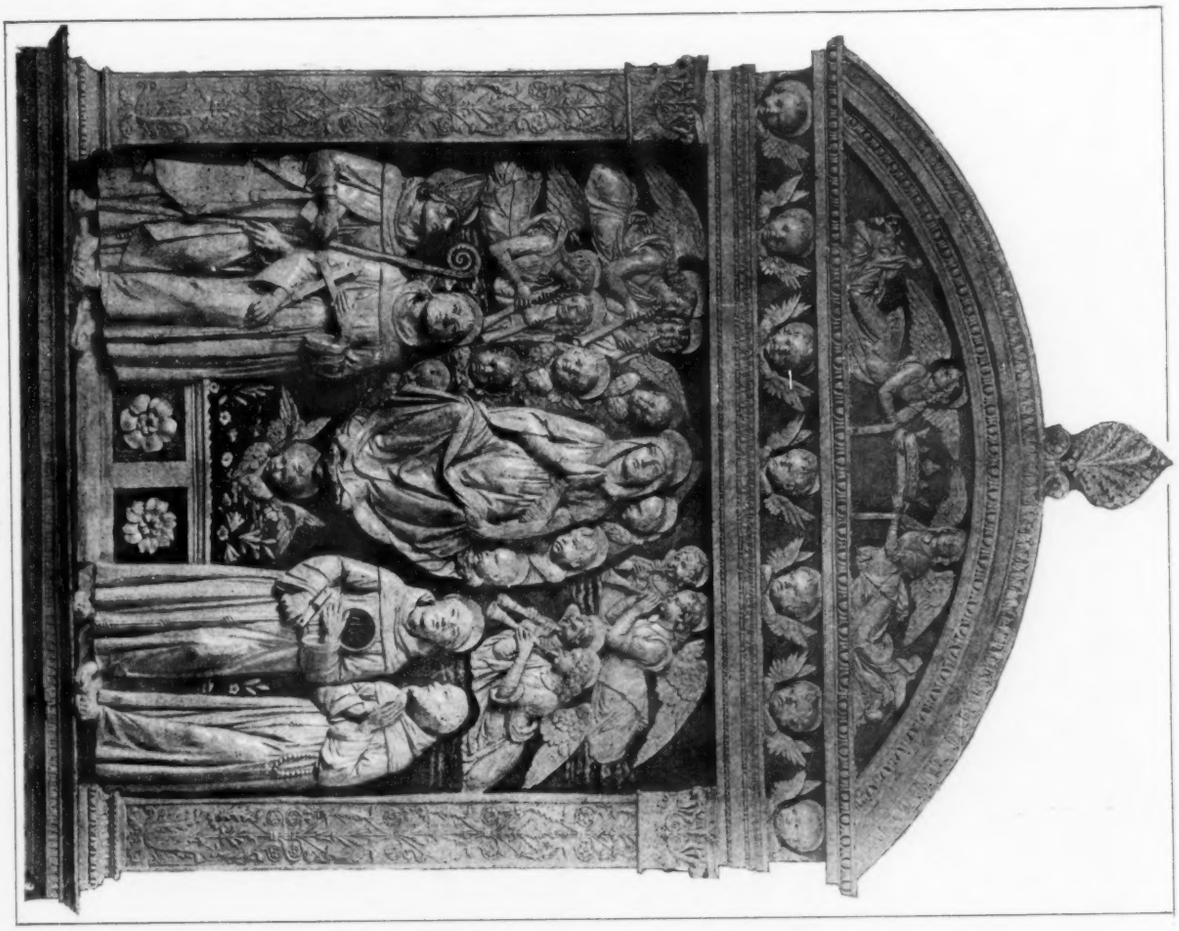

THE DELLA ROBBIA RETABLE.
METROPOLITAN MUSEUM OF ART, NEW YORK.

FIRENZE Lunetta di Luca Della Robbia sulla Porta di S. Pierino (in Marcato).

PHOTO GALVOTIC, HELIOTYPE PRINTING CO. BOSTON

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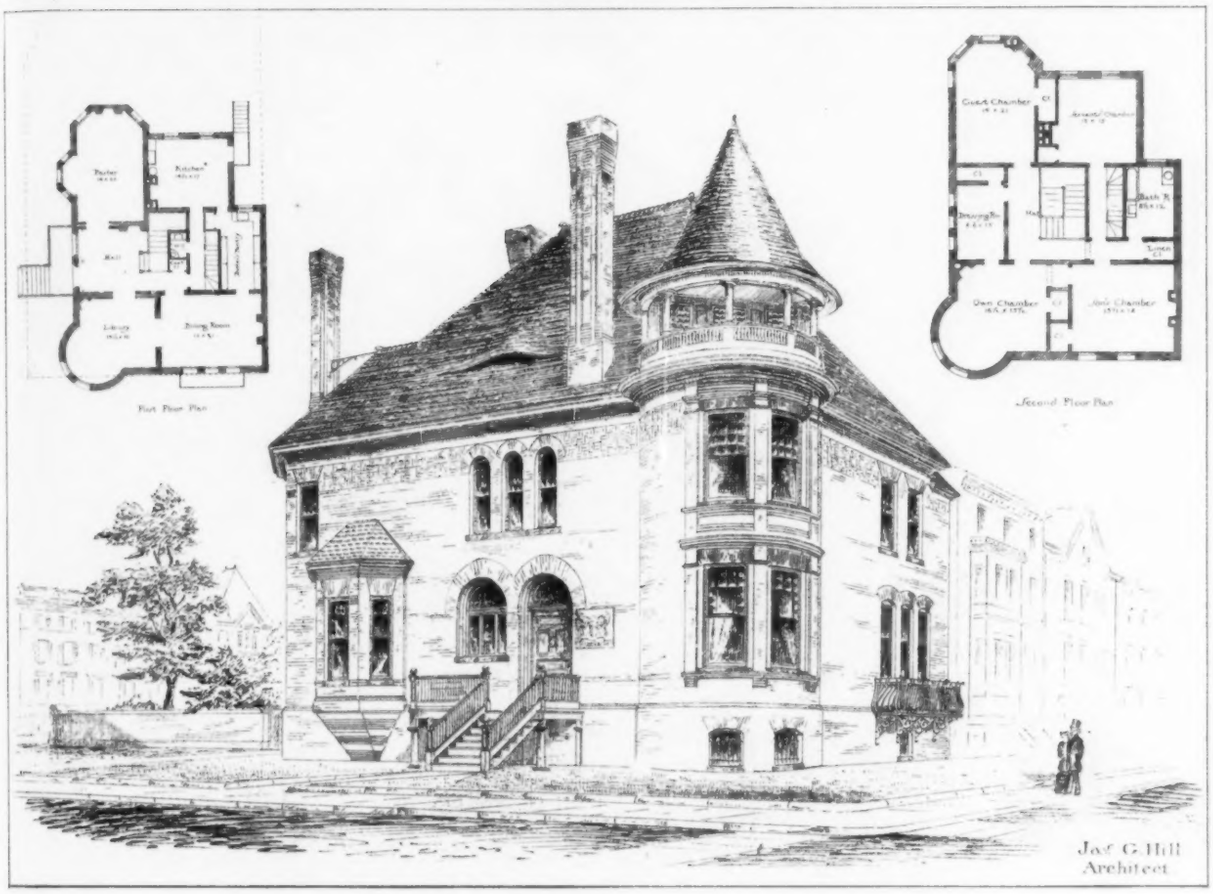

HOUSE FOR CHAPLAIN GEO. P. VAN WYCK U.S.A. WASHINGTON D.C.

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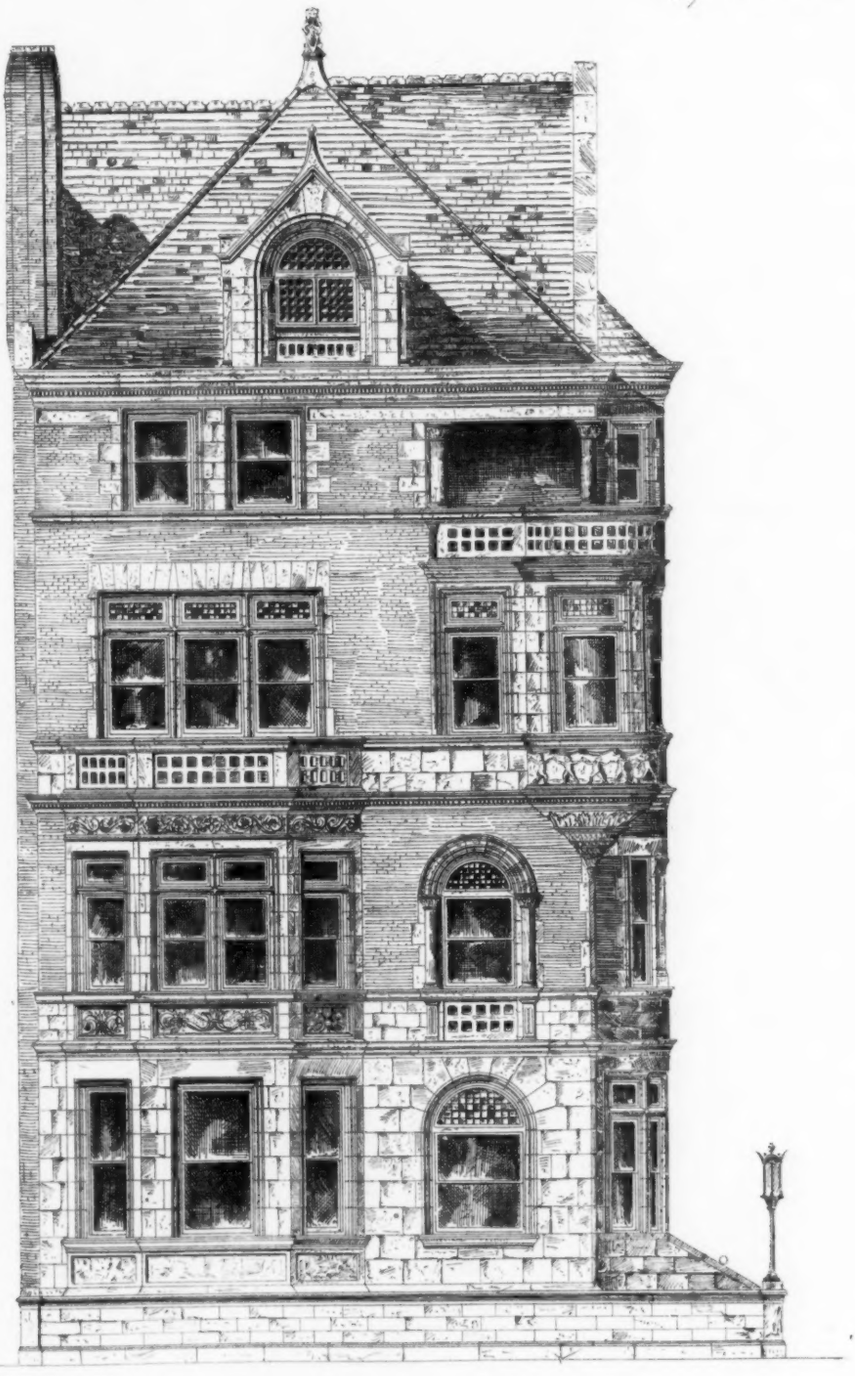
Design for a City House,
for a Corner Lot.

E. R. Tilton. Arch't.
149 Broadway, N.Y.C.



HELIOTYPE PRINTING CO. BOSTON

then we recognize, I think, a slight decline in taste. In necessarily architectural examples, however — as in his great altar-pieces — Andrea's framework is often most charmingly proportioned and designed. But here, too, certain elements occur at times which, while they aid the richness, detract from the purity of the result. For example, he often adorns his architecture with rows of detached cherub-heads, intrinsically delightful, but architecturally rather out of place.

From all of this it may be understood why it was that I said the beautiful reredos at the Metropolitan Museum [1] in New York should be attributed to Andrea, not to Luca Della Robbia. Neither historical nor critical evidence can with the least confidence assign a similar work to the earlier master. But there are very many retables which are known to be Andrea's, and among them two or three with the strongest likeness to our own. Every characteristic speaks for Andrea — the nature of the work itself; the design of the architectural setting, in which the cherub-heads are introduced; the many figures and diversified action; and the slight lack of strength in expression and form we cannot but note when we draw a comparison with a typical Luca. But it is a very fine, pure and characteristic example of Andrea's art — that is to say, of the school when it was in its fullest development, and ere the period of its real decline had begun. There is no possible reason why we should attribute it to a later hand than Andrea; but, there is every reason — if criticism in art means anything at all — why we should *not* attribute it to Luca's. Judging from a photograph our authors call it a "precious" possession. Such it is in truth; one which would be a treasure to any European museum; but being such there is all the less necessity to claim for it any interest or value not properly its own.

M. G. van Rensselaer.

Medallion by Andrea Della Robbia from the Hospital of the Innocents, Florence. (From *L'Art.*)

[1] Quoting Dr. Oscar Berggruen of Vienna, Messrs. Molinier and Cavalli cei describe the Metropolitan Museum reredos in the following terms: —

"Large retable. 'The Assumption.' In the centre the Virgin, seated on clouds, her hands joined, rises to heaven amid a glory of cherubim, while to the right and left float four groups of angels sounding on trumpets. Below is the sarcophagus of the Virgin ornamented with rosettes and filled with flowers. On the left, stand in ecstasy St. Augustine and St. Francis; on the right, St. Bernard of Sienna, and another monkish saint. Two pilasters, decorated with graceful candelabra, support a frieze ornamented with seven heads of cherubim. The tympanum, in the shape of a depressed arch, contains two floating angels bearing a crown. Figures enamelled in white on a blue ground, which is of a lighter tint in the *mandorla* around the Virgin. The style of this beautiful retable recalls the 'Coronation of the Virgin' in the Osservanza Convent at Sienna; the bas-reliefs at La Verna (especially the 'Madonna of the Girdle'); and the 'Coronation of the Virgin' in the Academy of the Fine Arts at Genoa. With every probability, therefore, one may attribute it to Andrea Della Robbia.

"It comes from Piombino where it adorned the main altar of the church. It was taken to Florence in 1830, and purchased a few years ago by an American, who generously presented it to the New York Museum. M. di Cesnola, director of this Museum, has placed it in a separate apartment where are shown a large number of photographs from the works of the Della Robbia family."

THE ILLUSTRATIONS.

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

THE GRISWOLD MAUSOLEUM, TROY, N. Y. MR. R. W. GIBSON, ARCHITECT, ALBANY, N. Y.

THE Mausoleum is at Oakwood Cemetery, near Troy, N. Y., built for Mrs. John A. Griswold, of Troy, N. Y., by the New England Granite Company. It is of Westerly granite, of warm gray color, part rock-faced and part tooled; capitals are carved. The roof is of red tiles and terra-cotta. The entrance is a round arched opening in the massive wall, fitted with a handsome wrought-iron sliding grille and a panelled door of oak. Internally the walls are lined with a dado of polished granite, in slabs, of two colors, anchored to the walls with bronze bolts with decorated scroll heads. Above this the walls are of red pressed brick, with moldings of carved bands in terra-cotta and a frieze of dead bronze color. The roof is of oak in open timbering. The floor is of polished marbles in geometrical pattern. An oblong opening in the floor, fitted with a movable wrought-iron railing, shows the crypt and tablets below, and a stone stair in one of the recesses gives other access to it. The windows will be fitted with memorial stained-glass. The design is copyrighted.

HOUSE, FOR REV. G. P. VAN WYCK, CHAPLAIN, U. S. A., WASHINGTON, D. C. MR. JAMES G. HILL, ARCHITECT, WASHINGTON, D. C.

THE exterior of this house, which will cost about $15,000, is of ordinary brick, selected reds.

DESIGN FOR A CITY HOUSE. MR. E. R. TILTON, ARCHITECT, NEW YORK, N. Y.

SCHOOL AND CHAPEL BUILDING FOR THE CONNECTICUT INDUSTRIAL SCHOOL, MIDDLETOWN, CONN. MESSRS. J. D. SIBLEY & SON, ARCHITECTS, MIDDLETOWN, CONN.

CHURCH OF THE ASCENSION, PUBLIC HALL, AND SUNDAY SCHOOL, GREENPORT, N. Y. MR. R. W. GIBSON, ARCHITECT, ALBANY, N. Y.

ENAMELLED TERRA-COTTA, BY LUCA DELLA ROBBIA, AND THE RETABLE, AT THE METROPOLITAN MUSEUM OF FINE ARTS, NEW YORK, N. Y.

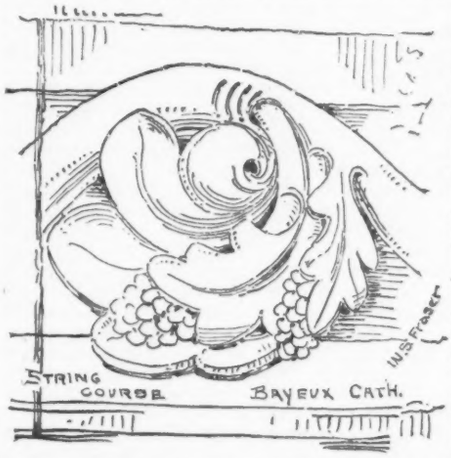
For description see article elsewhere in this issue.

COMPETITIVE DESIGN FOR BARN, SUBMITTED BY "*Asmodeus.*"

THE GROTTO OF POZZUOLI, NEAR NAPLES, ITALY.

This subterranean passage-way which leads from Baiæ to Averno, and known variously as the Grotta della Sibilla, Grotta del Cane, Grotta di Posilipo, etc., is supposed to date from the time of Nero, and by some is said to be due to the incantations of the poet Virgil. In the fifteenth century Alfonzo I, sunk the floor to its present level, and in the following century Don Pedro di Toledo paved it and built the two air-shafts which ventilate it. The grotto is 2250 feet long, twenty-two feet wide, and twenty-five feet high at the entrance, which height increases to sixty-nine feet at the centre.

PHOTOGRAPHY IN THE PRINTING-PRESS.[1] — II.



IT may be well to refer here to some methods which are coming into use for mechanically converting photograpic subjects with half-tone into lines or dots, in place of making them by hand.

These methods have always run in one direction; that is, in efforts to break up the half-tone, or shading of the photograph, either by chemical or mechanical means, into a series of lines or dots. Directly this can be satisfactorily done, all photographic subjects are available for the ordinary methods of printing, by means either of photo-lithography or photo-engraving.

Photo-gravure is a process by which a copper plate is prepared, by photographic means, for printing by the ordinary method, in a copper-plate press. In a copper-plate the lines are engraved or cut into the plate. These lines are filled with ink by a dabber, which dabs the ink into them, that which is left on the surface of the plate, and not in the engraved lines, being cleaned away with rags and the palm of the hand. Paper is laid on the plate, and the ink is transferred by heavy pressure from the plate to the paper. Where large masses of shadow occur, some device has to be used to hold the ink, which otherwise would be cleared out by the rag and hand in cleaning. The shadows have therefore to consist of a series of cells, formed by cross-lines which make a tooth or grain, so to speak, to hold the ink and prevent its being wiped out in cleaning up.

In the photographic method of making a copper-plate to print from, let us begin at the wrong end. Instead of engraving on a sheet of copper, let us manufacture a sheet of copper on a photograph. Copper can be deposited on gelatine in a battery, to any desired thickness. Let the gelatine be a bichromatized sheet, on which an

[1] A lecture recently delivered before the Boston Young Men's Christian Union, by Mr. Ernest Edwards. Continued from page 151, No. 483.

image has been made under a photographic negative and swollen by water. Let this be placed in a battery and copper deposited on it, and we have a copper plate on which a design has been engraved photographically, with this exception: such a plate would have no tooth or grain in the shadows, and therefore it would not hold the ink. This objection is obviated by first forming a tooth or grain in the bichromatized gelatine. Under certain conditions and under certain treatment, gelatine can be made to wrinkle up, and to do so more or less according as light has acted more or less. This wrinkling-up property is imparted to the bichromatized gelatine which carries the design; it is repeated in the copper deposited on the gelatine, and becomes the grain or tooth which gives the ink-holding capacity to the final plate. The photo-gravure process, then, consists of, first, the negative; next, the image on bichromatized gelatine, modified so as to wrinkle up; the final printing-plate being produced by a deposit of copper on the gelatine in battery.

The magnificent results produced by this process in the hands of Messrs. Goupil are well known. As works of art and as examples of process-work, they are entirely unapproached. But I am bound to add that, highly as I esteem them, I look upon their beautyand excellence as produced not more by the process than by the perfection and skill of the whole surrounding workmanship, and also by the merits of the works of art of which they are reproductions — a set of factors which are only possible in Paris and in the house of Goupil & Co.

We now come to those processes where, though the results are obtained by photography, in a printing-press, not only the printing-plate but also the method or printing is novel. Of all of them, the woodburytype method is the most novel and the most unlike any other printing method.

What is known as nature printing is perhaps most closely allied to it. In nature printing, on a plate made of type-metal or something equally soft, is laid, say a fern; this is pressed into the soft metal by heavy pressure. When the fern is removed, a depressed image, an image in intaglio, remains in the metal, which is then inked up and treated somewhat as in the copper-plate method. In the Woodbury process a gelatine relief, produced photographically, takes the place of the fern and is pressed into the metal. First, as usual, comes the photographic negative, then the image on bichromatized gelatine. But the gelatine is not simply swollen by water; all the parts that have not been acted on by light, being still soluble, are dissolved and washed away with hot water. The resulting gelatine relief is dried and is pressed, like the fern, into soft metal; then comes the printing, which is very curious. This soft metal plate is really a mould, and is actually used as a jelly-mould. It is placed on a printing-press, and a little warm liquid jelly is poured on to it. Before the jelly has time to set, a piece of paper is laid on the jelly, and pressure is brought to bear, which squeezes out all the jelly that is not in the mould. The paper is withdrawn, bringing the jelly with it out of the mould, and it is dried. There are varying depths to the mould, so there will be varying depths to the jelly, and if, whilst the jelly was warm, before it was used, color had been added to it, varying depths of color would also appear in the jelly, and would make a picture, and all this would have been done by photography. The beautiful woodburytypes are all produced in this ingenious way.

Printing from the surface of the actual sheet of bichromatized gelatine is perhaps the best known form of photo-mechanical printing, and is practised under various names, such as albertype, heliotype, artotype, and so forth.

The principle underlying all this set of processes is that a surface of bichromatized gelatine, on which an image has been produced by light acting through a photographic negative, is somewhat analogous to that of a lithographic stone. In the latter, a design is drawn on the stone so as to make certain parts of it repellant of water, and to these parts greasy ink readily attaches itself. In the gelatine, light has produced a design repellant of water, by water-proofing the gelatine where it has acted. But the gelatine goes farther than the lithographic stone, which only recognizes black and white, for the gelatine recognizes shading or half-tone; that is to say, where there is shading or half-tone in the negative, the light makes the gelatine partly insoluble, so that it partly absorbs water, and greasy ink partly adheres and produces shading. This gives these methods a great advantage over the photo-lithography and photo-engraving methods, for all subjects that can be photographed are within their range, and the printing-plates are easily and cheaply prepared. As always, the negative is the first step; and, remember, any subject may be reproduced, and we are not confined to black and white originals. Then comes the printing on the surface of the bichromatized gelatine; then the preparing of this gelatine for the press — the various methods have varying devices to this end; then the plate is sponged with water, so that those parts which are not to take the greasy ink may absorb the water and repel it, otherwise ink would attach itself all over the plate; then the inking, which is usually done with two rollers and two inks, one finer than the other; finally the paper is placed on the plate and the impression is pulled, the operation being repeated as often as may be desired. It would be supposed that a delicate surface of gelatine, kept continually in a moist state, would hardly be capable of standing the rough usage to which it must be subjected in the process of printing; but in practice it is found to be very durable, and I think the very delicacy of the gelatine is its best protection. A large number of impressions may be pulled from one gelatine sheet, and the preparation of another, if required, is very simple.

The results of this method are so well known as not to need description. It is applicable to a large number of publication and reproduction purposes; it is largely employed for works of art, and wherever a cheap, quick and permanent substitute for photography is desired it has no rival.

In all processes of printing it is hardly necessary to say that ink of any color may be used, so that our prints may be of black, or red, or green, or of any color we choose; but from one plate they can of course only be of one color.

Various attempts have been made to apply color-printing to photo-mechanical and especially to gelatine printing. The latest results are those shown by the Fac-simile Company, of New York, in which all the gradations of tints of an original water-color sketch are reproduced, from photographic gelatine plates, in five or six printings.

I understand the basis of this method to be somewhat as follows:—

The starting-point is that all colors are simply varying combinations of the three primary colors, red, yellow and blue. If we can photograph a colored picture, eliminating all the blues and yellows, the result will be a negative of the red parts of the picture only; similarly we may obtain a negative of the yellow parts only, and of the blue parts only. Now if gelatine plates are made of these three negatives and printed in their proper colored inks — blue, yellow, red — the result should be a picture similar in its arrangement of color, and having all the variations of color, of the original. Extra printings would no doubt be necessary to make up for the lack of purity in the pigments that are available for use in the arts. The theory of this method is captivating, and the results obtained so far give great promise.

In all of these processes which I have attempted to describe, photography is directly applied to the printing-press, and is not simply a means to the end, but is, in every case, a process complete in itself, unaided by the hand of the artist.

Photography is also used very extensively to assist in preparing work for the printing-press, as, for instance, in printing photographs on the wood block as a guide for the engraver; but with these applications we need not to-night trouble ourselves, nor have I attempted to describe any but the methods which are well established and which have taken their place in the world as commercial manufactures, and in re-enumerating the processes — photo-lithography, photo-engraving, photo-gravure, woodburytype, albertype, heliotype — and the manifold uses, the manifold good and educational uses, to which they are already put, I feel that photography, the youngest of the arts, whose good name was threatened by the sense of insecurity in her work, has cast off that reproach, and to-day is hand in hand with that art preservative of all arts — the art of printing.

TRANSPLANTING LARGE TREES.[1]

NICHE ON STREET ANGLE, BARCELONA, SPAIN.

WHEN years ago more than one hundred trees of considerable size (from twenty to fifty inches in girth, or about one foot in diameter on an average) were transplanted on the Capitol grounds. They were not in a thrifty condition, and to adapt them to removal, their roots were cut off at a distance not greater in any case than three and a half feet from the trunk. Their branches were also closely shortened in, reducing their heads to from one to two-thirds their original size. It was considered a question whether the trees would retain enough of vital energy to survive, and the operation was often referred to for some years afterwards as an injudicious and disastrous one. It is therefore desirable that attention should be called to the results as now to be observed. The condition of two of the trees was regarded at the time as especially hazardous, and these were placed where in case of failure their absence would not be important. After three years they were still living, and promising to live, but not to flourish; they therefore were felled.

Of the remainder no tree has died as the result of the removal, and those that have escaped serious injury from causes not connected with the removal are all now living and in a thriving condition. In general, their heads are much larger as well as much denser than they had been before they were shortened in, and they are growing more rapidly than before their removal Their rate of

[1] By Frederick Law Olmstead, from the Report of the Architect of the Capitol at Washington.

growth is also more rapid than that of trees on the ground of corresponding species and age that have not been removed, the reason being that the soil about the latter could not be thoroughly improved without lifting them.

To more distinctly present the degree in which the operation has been successful, twenty of these transplanted trees have been measured, selecting those which, because of their size or other circumstance, presented the greater difficulties. The measurements are given below, and supply indices of the present thrift of the trees. Similar measurements are also given of trees of numerous sorts obtained from commercial nurseries, or from the indigenous woods near Washington, these when removed having been generally small saplings.

Trees of the list A were moved by machine in the fall and spring of 1875–76 and (except a few of the smaller, taken from the Botanic Garden) from a thin soil on a stiff clay subsoil to a prepared soil and subsoil (described on page 15 of the Report of the Architect of the Capitol for 1882). Those from the Botanic Garden were from better soil and more sheltered positions.

The machine used is described and pictured in the report on forestry, prepared under the direction of the Commissioner of Agriculture, pursuant to an Act of Congress, approved August 15, 1876, pages 84, 85. The roots of all were cut to "balls" (not frozen), generally of a diameter of eight feet, none larger. Their heads were shortened in fully one-third, in some cases two-thirds. Since transplanting they have been several times lightly top-dressed, and in periods of severe drought have been watered. They have had fully

A.

Present Measurements of Large Trees Transplanted at Washington in 1875-76.

No.	Common Name.	Girth.	Height.	Sweep.	Shoots.	Observations.
		′ ″	′ ″	′ ″	′ ″	
1	White Elm	5 10	51 6	47 0	3 1	Ulmus americana. Upright, 5′; lateral. 8′.
2	" "	5 11	66 6	42 0	1 3	Ulmus americana. Upright, 8′; lateral, 12′.
3	" "	6 5	61 0	35 0	1 11	Ulmus americana. Upright, 10′; lateral, 14′.
4	English Elm	6 9	60 0	42 0	2 5	Ulmus campestris. Upright, 8′; lateral, 12′.
5	Wahoo "	4 2	42 0	48 0	2 9	Ulmus alata. B. G. Upright, 15′; lateral, 13′.
6	White Oak	4 7	51 0	27 0	1 3	Quercus alba. Upright, 9′; lateral, 10′.
7	Willow "	3 4	40 0	26 0	1 8	Quercus Phellos. Trimmed to a pole. Upright, 18′; lateral, 16′.
8	Pin "	3 7	35 0	30 0	1 3	Quercus palustris. B. G. Upright, 10′; lateral, 10′,
9	Royal "	3 9	28 0	36 0	2 6	Quercus Robur. B. G. Lateral, 14′.
10	Sugar Maple	2 7	38 0	32 0	0 10	Acer saccharinum. Upright, 6′; lateral, 7′ 6″.
11	" "	3 2	35 0	27 0	1 0	Acer saccharinum. Upright, 13′; lateral, 8′.
12	Norway "	3 1	31 0	33 0	0 11	Acer platanoides. Upright, 12′; lateral, 10′.
13	Scarlet "	3 1	34 0	36 0	1 4	Acer rubrum.
14	Silver "	4 3	48 0	39 0	2 6	Acer dasycarpum. Upright, 18′; lateral, 19′.
15	Box Elder	3 11	35 0	42 0	2 5	Negundo aceroides. B. G. Upright, 19′; lateral, 13′.
16	American Beech	2 3	30 0	24 0	1 8	Fagus ferruginea. Upright, 16′; lateral, 6′.
17	Plane	3 10	40 0	38 0	3 2	Platanus orientalis. B. G. Upright, 18′; lateral, 14′.
18	Linden	4 4	42 0	42 0	1 1	Tilia europæa. Upright, 5′; lateral, 7′.
19	White Ash	4 9	48 0	32 0	1 9	Fraxinus americana.
20	Madeira Nut	4 1	32 0	33 0	1 7	Juglans regia. B. G. Upright, 6′; lateral, 6′.
21	American Holly	2 4	17 6	18 0	0 8	Ilex Opaca. Heavily fruiting.
22	Horse Chestnut	5 2	36 0	36 0	0 7	Æsculus Hippocastanum. This was one of two Horse Chestnuts near together. That originally the larger was not moved, and is now the smaller in girth, height and breadth.

the usual struggle with vermin, and most of the elms have this year been denuded of foliage.

Trees of the list B, except as stated, were planted in 1876–77. They had been obtained from commercial nurseries, largely from Washington and Baltimore, and when planted were saplings from half an inch to an inch and a half in thickness of stem and three feet to six feet in height. Those noted as "wild" were obtained from woods near Washington, and several of these being injured or stunted were, the second year, cut to the stumps, and the present growth is from the ground since planting.

In the column "girth" the circumference of the tree is given at two feet from the ground; in that of "height," distance from the ground of the uppermost twigs of the tree; in that of "sweep," distance between opposite outer twigs; in that of "shoots," measurement of shoots of this year's growth at ends of lateral branches (usually the trees are well balanced and, except elms, symmetrical. The entire upright growth and lateral growth on one side in ten years after planting from limbs then stumped is given where observed. In the last column "B. G." means from the Botanic Garden. The measurements given were made 14th, 15th, and 16th of September, 1884. Measurements are in feet, or in feet and inches.

In a comment upon the above a writer in the *Gardeners' Monthly* says, "It is an extremely interesting commentary on the prevalent opinion, industriously fostered in some quarters, that there is any serious difficulty in getting large trees to grow. In this part of the world an experience of thirty years has shown that it is not necessary for even the expense of the ball of earth cared for in the Washington experiments. The transplanter commences four feet or five feet from the trunk, gets all the roots he can, and carries as little

B.

Present Measurements of Small Trees Transplanted in 1876-77, Obtained from Nurseries.

No.	Common Name.	Girth.	Height.	Sweep.	Shoots.	Observations.
		′ ″	′ ″	′ ″	′ ″	
1	American Elm	3 4	36 0	24 0		Ulmus americanus.
2	" "	2 10	24 0	30 0	2 10	Ulmus campestris.
3	Cork "	2 9	29 6	26 0	1 7	Ulmus suberosa.
4	Planera	2 1	22 0	24 0		Planera aquatica. Upright growth, 15′.
5	Over-cup Oak	1 8	25 0	15 0	0 8	Quercus macrocarpa.
6	Chestnut "	1 4	26 0	21 0	1 8	Quercus Prinos.
7	Spanish "	2 0	27 0	15 0	1 1	Quercus falcata.
8	Willow "	3 1	36 0	36 0	1 6	Quercus Phellos.
9	" "	2 5	27 0	25 0	1 6	Quercus Phellos.
10	Royal "	3 4	28 0	36 0	2 0	Quercus Robur.
11	" "	2 5	28 0	27 0	1 3	Quercus Robur.
12	Scarlet Maple	2 1	27 0	24 0	1 10	Acer rubrum.
13	Field "	2 7	19 0	18 0		Acer campestre.
14	" "	3 10	24 0	24 0	1 4	Acer campestre.
15	White Ash	2 8	24 0	18 0	1 3	Fraxinus americana.
16	" "	1 11	23 0	21 0	1 0	Fraxinus americana.
17	Coffee Tree	1 5	25 0	24 0	1 8	Gymnocladus canadensis.
18	Oriental Plane	3 5	43 0	41 0	2 3	Platanus orientalis. Penn'a circle; imported, 1877.
19	" "	3 3	42 0	40 0	2 3	Platanus orientalis. Upright, 30′.
20	Tulip	2 1	26 0	21 0	1 7	Liriodendron Tulipifera.
21	Yellow-wood	1 0	29 0	24 0	2 0	Cladrastis tinctoria.
22	American Chestnut	1 8	21 0	17 5	1 10	Castanea vesca. Upright, 16′; wild.
23	shingle Oak	2 5	17 6	13 0	8 6	Quercus imbricaria. Damaged plant: recovering.
24	Norway Maple	3 7	42 0	35 0	1 0	Acer platanoides. Upright, 8′; lateral, 4′: 1876.
25	Sycamore "	2 11	38 0	27 0	0 6	Acer pseudo-platanus. Upright, 6′; lateral, 4′; 1876.
26	Sugar "	3 7	36 0	41 0	0 10	Acer saccharinum. Upright, 6′; lateral, 6′ 6″.
27	Buckeye "	4 10	44 6	33 0	1 11	Æsculus glabra. Upright, 4′; lateral, 6′; 1876.
28	Turkey Oak	1 9	18 0	14 0	1 4	Quercus Cerris.
29	American Hornbeam	1 6	20 0	14 0	2 9	Carpinus Betulus.
30	Persimmon	1 2	17 0		2 0	Diospyros virginiana. Stump; wild growth from ground.
31	Oleaster	2 9	22 0	24 0	0 4	Elæagnus hortensis.
32	Angelica	0 8½	10 0	6 0		Aralia spinosa.
33	Christ's Thorn	1 3	13 0	15 0	2 3	Zizyphus vulgaris. Loaded with fruit.
34	Cucumber	1 2	15 0	10 0	1 5	Magnolia acuminata. Planting height, 4′.
35	Yellow Cucumber	1 7	16 0	15 0	1 5	Magnolia cordata. Planting height, 3′.
36	Great-leaved "	0 10	13 0	7 0	1 5	Magnolia macrophylla.
37	Sassafras	1 6	17 0	15 0	1 8	Sassafras officinalis. Wild.
38	Osage Orange	1 5	20 0	30 0		Maclura aurantiaca.
39	Catalpa	2 0	19 0	24 0	0 10	Catalpa bignonioides.
40	Golden Catalpa	2 8	23 0	24 0	2 0	Catalpa bignonioides; var. aurea.
41	Japan "	2 4	29 0	22 0	3 0	Catalpa Kæmpferi.
42	Cedrela	1 7	27 6	6 0	4 0	Cedrela sinensis. Lower laterals removed.
43	Dogwood	1 6	12 0	15 0	8 0	Cornus florida. Stump; wild.
44	Redbud	2 2	14 0	24 0	1 8	Cercis canadensis. 1876.
45	Sweet Gum	1 9	23 0	17 0	1 3	Liquidambar styraciflua. Wild; upright, 19′; 1876.
46	Lime	2 2	22 0	21 0	1 1	Tilia europæa.
47	Scotch Birch	1 7	28 0	18 0	15 0	Betula alba. Upright, 24′; 1878.

earth as possible. A cart is placed up against the tree, the shafts lashed to the trunk, a rope attached to the top of the tree, and the axle serving as a prop for the lever, a ton or two of tree is easily lifted. A horse is attached to the tail end of the cart, and, root foremost, the tree is hauled and dropped into the hole prepared for it. A tree, by this plan, twenty-five feet or thirty feet high, and with a trunk three feet or four feet in circumference, can be dug, taken a mile and replanted for about £5, and more safely, we think here, than by the ball method."

Pneumatic Despatch between London and Paris. — A plan for the transmission of mails between Paris and London, by the pneumatic process devised by a M. Berlin, is exciting considerable interest. The following are a few particulars of the scheme: The pneumatic tubes or subway would be laid down alongside the existing railways for convenience sake. The total distance between the two capitals is four hundred and seventy-five kilometres, viz.: Paris to Calais (rail), two hundred and ninety-seven kilometres; Calais to Dover (Channel) thirty-nine kilometres; and Dover to London (rail), one hundred and thirty-nine kilometres. The pneumatic subway would be constructed of cast-iron pipes of thirty-nine centimetres in diameter and four metres in length, connected by means of India-rubber points. This arrangement has the effect of giving great flexibility and elasticity to the whole, and of making it water-tight besides. The carriage suggested is composed of a wire frame covered by a sheet of asbestos-cloth with a metallic warp. This covering would have a kind of metallic brush coating, to enable the compressed air to dilate to a certain extent around the truck and cool the latter, thus counteracting the heat produced by the friction. A truck would travel the distance between the two capitals in one hour, and one could be despatched every ten minutes. An engine of from twenty-eight to thirty horse-power would be sufficient. — *New York Evening P*

DR. W. B. RICHARDSON.

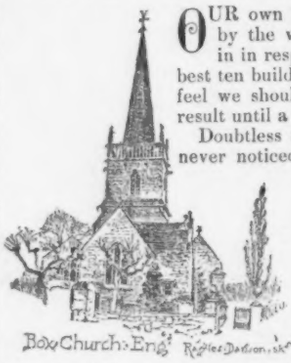
Renaissance Staircase, Santa Cruz, Toledo, Spain.

IN Manchester Square, says the *Citizen*, one of the leading houses is inhabited by a gentleman of the name of Richardson, who, if ever we have a rational system of government, will be placed at the head of the Board of Health. We will take the reader to the doctor's home in Manchester Square. The chances are, if we call upon him, we shall find him either very busy in his consulting-room or preparing an article on his favorite study for the press, or in making notes of an address or lecture to be given, perhaps, that night. He was the intimate friend and physician of George Cruikshank in his latter days, and the works of our modern Hogarth decorate the drawing-room. The doctor has a son an artist, and is himself an artist in words. His books are pictures of a world from which disease is driven away, where feeble health is unknown. His speeches are poems, with Hygeia for his theme. Yet he can be practical; and the clearest address we ever heard on that much-ventilated but little understood subject of drainage was one we heard him deliver. The doctor is great at organization, and is a perfect master of the way to conduct public business, as has been repeatedly shown at the various societies with which he is more or less connected. On public platforms the doctor is a conspicuous figure. Somewhat inclined to be stout, with a face rather jovial than scientific, with an ample voice and a ready command of language, he is a great contrast to many of his brethren. Indeed, you might take him for a country squire rather than for a fashionable physician at the West End. In private life, that is, in general society, he is equally the squire, full of fun and good nature, rather than the highly trained and somewhat affected man of science. It is often said appearances are deceptive. That is true as regards Dr. Richardson, of whom, however, it may be said that, while not living in his model city — indeed inhabiting a vast metropolis very much the reverse — he is a picture of good health, and the good spirits which generally attend upon good health.

The doctor is ever on the lookout for new ideas. He is a man of progress; his latest appearance in public is as president of the Tricycle Club. Long before his scientific researches into the nature and properties of alcohol, Dr. Richardson had become known as a successful scientific explorer. In 1865 he conducted an experimental inquiry on the poisons lurking in contagious diseases, which resulted in the discovery of a specific poisonous product, to which he gave the name of septine, and which he believes is common to these poisons. In 1866 he introduced the application of the ether spray for the local abolition of pain in surgical operations; and as far back as 1854 we find him bringing out the first number of the journal of *Public Health and Sanitary Review* (he had previously vainly endeavored to establish the first journal of public health in this country). He was backed in this enterprise by the Epidemiological Society, and every sanitary reformer came to his help. For the title-page of his review he invented the sentence which has now passed into one of our best-known national proverbs, and which might take its stand among the sayings of the Seven Wise Men of Greece: "National health is national wealth." The doctor deserves well of the public in this matter.

Dr. Richardson was born at Somerby, Leicestershire, in October, 1828. He took his first medical and surgical diploma in 1850; in 1854 he graduated in medicine at St. Andrew's, and in 1859 he received the honorary degree of M.A., from the same university. In 1861 he became a Fellow of the Royal College of Physicians. His numerous essays on medical subjects won him many friends. Learned societies on the Continent and in America have delighted to do him honor; but perhaps that by which he became best known was by the delivery, in 1874 and 1875, of his far-famed "Cantor Lectures," before the Society of Arts. It was these that won for him the enthusiasm of the temperance public, who pushed his works everywhere, and got him to lecture all over the land. One of his most useful and popular works, "*The Diseases of Life*," was published in 1876, and rapidly went through several editions. His offices are many. He is honorary physician of the Royal Literary Fund, the Newspaper Press Fund, and to the National Society of Schoolmasters. He was elected a member of the London School Board by a unanimous vote. In 1860, in consequence of his various contributions to science and medicine, six hundred of his medical brethren and scientific friends united in presenting him with a testimonial in the shape of a microscope by Ross, and one thousand guineas. In 1877 the honorary degree of LL.D. was conferred upon him by his own university, St. Andrew's. It was well deserved, for certainly that ancient university has rarely had a more distinguished son, certainly not one who has worked harder or with more success for the happiness and well-being of the community at large. In the prime of life, the doctor may yet live to see his Hygeia built, and the millenium on which he eloquently dilates initiated.

THE BEST TEN BUILDINGS IN THIS COUNTRY.



Box Church, Eng.

OUR own purposes have been fully subserved by the votes which have already been sent in in response to our invitation to name the best ten buildings in this country, but we do not feel we should be justified in announcing the result until a heavier vote has been polled.

Doubtless some think the idea foolish; some never noticed our invitation; others forgot it; others hesitate to vote, as they do not wish to commit themselves, even under the seal of confidence; and others again find it difficult to name more than the first two or three, and need suggestion as to how the list can be filled up.

Therefore as hint, reminder, stimulus and suggestion to these several classes, it may be useful for us to say that, as the following buildings have already been most frequently mentioned, they may fairly be considered as in nomination, and we trust we do not deceive ourselves in the expectation that this preliminary publication will call out yet more votes, and not necessarily for these buildings only.

As a stimulus to further interest in this matter, we will say that the building which has polled the most votes has received 86 per cent of the suffrages, while the building next on the list is supported by only 46 per cent of the voters.

It is hardly necessary to say that the present list is not arranged with any reference to the number of votes already cast.

NEW YORK, N. Y.

Trinity Church. Richard Upjohn, Architect.
Union Theological Seminary. Potter & Lord, Architects.
Jefferson Market Court-House. F. C. Withers, Architect.
Columbia College. C. C. Haight, Architect.
House of W. K. Vanderbilt. R. M. Hunt, Architect.
House of C. Vanderbilt. G. B. Post, Architect.
House of W. H. Vanderbilt. Atwood & Snooks, Architects.
Metropolitan Opera-House. J. C. Cady & Co., Architects.
Manhattan Storage Warehouse. J. E. Ware, Architect.
Produce Exchange. G. B. Post, Architect.
Jewish Synagogue. L. Eidlitz, Architect.
Casino Theatre. Kimball & Wisedell, Architects.
Grace Church. Renwick & Sands, Architects.
St. Patrick's Cathedral. Renwick & Sands, Architects.
Lenox Library. R. M. Hunt, Architect.
Union League Club-House. Peabody & Stearns, Architect.
Mutual Life Ins. Co.'s Building. C. W. Clinton, Architect.
Tiffany Flats. McKim, Mead & White, Architects.
Villard House. McKim, Mead & White, Architects.
Academy of Design. P. B. Wight, Architect.
City-Hall.
Manhattan & Merchants' Bank. Wheeler Smith, Architect.
Dakota Flats. H. J. Hardenbergh, Architect.
Mills Building. G. B. Post, Architect.

BOSTON, MASS.

Trinity Church. Gambrel & Richardson, Architects.
Ames Building. H. H. Richardson, Architect.
Boston & Providence R. R. Station. Peabody & Stearns, Architects.
Brattle-Street Church (Tower). Gambrel & Richardson, Architects.
Y. M. C. A. Building. Sturgis & Brigham, Architects.
Art Club Building. W. R. Emerson, Architect.
Museum of Fine Arts. Sturgis & Brigham, Architects.

CINCINNATI, O.

Music Hall. Hannaford & Procter, Architects.

WASHINGTON, D. C.

U. S. Capitol. Hallet, Hadfield, Hoban, Latrobe, Bulfinch, Walter, Clark, Architects.
State, War and Navy Building.
White House. James Hoban, Architect.

CHICAGO, ILL.

Cook County Court-House. J. J. Egan, Architect.
Philadelphia R. R. Depot. L. Eidlitz, Architect.
Pullman Building. S. S. Beman, Architect.

PHILADELPHIA, PA.

New City-Hall. J. McArthur, Jr., Architect.
Broad-Street R. R. Station. Wilson Bros. & Co., Architects.
Masonic Temple. J. H. Windrim, Architect.
Insurance Co. of North America's Building. Cabot & Chandler, Architects.
Girard College. T. U. Walter, Architect.

CAMBRIDGE, MASS.

Harvard Law School. H. H. Richardson, Architect.
Memorial Hall. Ware & Van Brunt, Architects.
Seaver Hall. H. H. Richardson, Architect.
Harvard Gymnasium. Peabody & Stearns, Architects.

ALBANY, N. Y.

City-Hall. H. H. Richardson, Architect.
Capitol (original design). Thos. Fuller, Architect.
Capitol (rehabilitated design). Eidlitz & Richardson, Architects.

MISCELLANEOUS.

St. Stephens, Lynn, Mass. Ware & Van Brunt, Architects.
Boston & Albany R. R. Depot, Worcester, Mass. Ware & Van Brunt, Architects.
Crane Library, Quincy, Mass. H. H. Richardson, Architect.
Town-Hall, North Easton, Mass. H. H. Richardson, Architect.
State Capitol, Hartford, Conn. R. M. Upjohn, Architect.

THE SUTRO LIBRARY.

SAN FRANCISCO, March 27, 1885.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — San Francisco has reason to be proud of her rapid growth, her *to be* beautiful park, glorious climate, and other numerous attractions, and in a few years the Sutro Library will be perhaps the most worthy object of admiration we have.

Mr. Adolph Sutro, whose indomitable courage and natural ability conceived and carried out the scheme of the Sutro Tunnel on the Comstock, after years of opposition and trials, and who happily made a fortune thereby, has conceived another project, already in operation, namely, collecting a technical library, which he will endow and give to the City of San Francisco.

A librarian is now cataloguing about seventy thousand rare volumes, which, outside of their value as scientific and art works, are a great curiosity. Many of them are manuscript works, lettered before printing was discovered, whose illuminated title-pages and headings are a perfect feast for artist, designer and architect. A noteworthy fact about these volumes, four and five hundred years old, is that the bindings are so perfect and thorough that one can turn the covers back till they meet, a virtue modern book-binders could emulate to their credit. The guards and clasps are many of them very beautiful in design, but unfortunately most of the old volumes have been stripped of these by pillagers, as these guards and clasps were often of silver and bronze.

The books have not been assorted as yet, so the writer cannot give you any list of architectural works, but it is Mr. Sutro's idea to make a complete collection, not only in this line, but of all the arts and sciences, and to this end has now employed in Europe book-worms and agents who are continually sending rare volumes.

Among the many interesting papers are hundreds of old proclamations of the Houses of Parliament in England, before and after the time of Cromwell; a copy of the Vinegar Bible, also of the Breeches Bible, and other rare and curious editions of bibles.

Mr. Sutro's plan is to collect at least three hundred thousand volumes of purely technical works, so that students on this coast shall have advantages equalled by none in the United States and even in Europe.

It is pleasant to see the higher aims of a wealthy man thus being carried out whilst we are in the midst of such disgraceful scenes as those of the Sharon trial. W. F. S.

FIRE-PROOF BUILDING.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Having read with much interest the course of papers you published some time ago, by Mr. Clark, on church building superintendence, I would suggest that it might be of great interest and benefit to many of your readers if a similar series could be published on the construction of a fire-proof business and office building. Can you mention anything that has been published directly in this line? Yours truly, A SUBSCRIBER.

[A PAMPHLET published ten or twelve years ago by the American Institute of Architects, on Fire-proof Construction, by Mr. P. B. Wight, gave, better than anything we know, the elements of the science of fire-proof building as then understood. Since that time Mr. Wight, both in his own name, and for the fire-proof construction company with which his name is now connected, has published various excellent occasional articles and papers. Mr. Whiting's book on Fire Protection of Mills, although dealing with a single branch of the subject, discusses principles of the widest application to buildings of all sorts. Lastly, the articles on Recent Improvements in Building, published in Nos. 464 and 465 of this journal, give some information as to the most modern practice. We are much obliged for the suggestion that the connected history of the construction of a fire-proof building might be useful, and will certainly keep it in mind.—EDS. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS.

THE URSULINE CONVENT RUINS, SOMERVILLE, MASS. — The ruins of the Ursuline convent at Somerville, Mass., which have stood for more than half a century as a silent reminder of the violence of the anti-Catholic mob which destroyed the building on the night of August 11, 1834, are at last to be removed, the estate having passed into the hands of Mr. W. G. Howe.

ARSENIC WALL-PAPER. — The quantity of arsenic which was at one time employed in the manufacture of paper-hangings may be inferred from what was said by Mr. Aumorier, in the paper read by him at the Building Exhibition on Monday. One firm in the trade stated that they formerly used on an average one ton of emerald-green per week all the year round. The color is the most arsenical in general use, and, in round numbers, half of its weight may be considered arsenical. This would give a consumption in one factory of about twenty-five tons of arsenic per annum, and as there were several other makers in an equally large way of business, and a number of smaller factories, it would be safe to assume that this firm did not use one-quarter of the whole quantity used in the trade of England alone. It is therefore certain that at least one hundred tons of arsenic were annually used for paper staining until its employment was voluntarily abandoned by manufacturers, under the pressure of public opinion.—*The Architect.*

TEMPERED GLASS. — In the report of Mr. Frederick Siemens's paper read on February 26, and in the discussion thereon, I see no mention of the fact that the process of tempering glass, as carried on at the Dresden Glass Works for the last six years, was carried on at Stockport, England, in 1877-78. On March 30, 1878, I conducted a party of students from the Manchester Architectural Association over the works, and having with me a number of samples, each six inches square, of sixteen-ounce, twenty-one ounce, and twenty-seven ounce sheet glass, had half of them tempered by the process of heating to redness and then chilling between iron tables or slabs permeated by cold-water tubes. The sheet-glass, when so tempered, only broke when the weight fell three times the height (or nine-fold percussion) required to break the usual sheet-glass, and a piece of five-eighths inch rough plate resisted a two and one-quarter pound lead weight dropped from a height of about forty feet, or three hundred and eighty-three times the percussion which broke common five-eighths inch rough plate. I used some tempered sheet-glass for windows of a mechanics' shop, and it well resisted the iron chips from the cold chisels. The manufacture ultimately failed, apparently from not being annexed to a glass-works, but being carried on as a separate business. —*J. Corbett, in the Journal of the Society of Arts.*

BASEMENT FLOORS FOR LIGHT MACHINERY. — There are many difficulties in regard to the construction of basement floors for light machinery used in textile mills, and some interest may pertain to the various methods used in the United States for such purposes. Stone floors are open to many objections on account of their irregularities, and the difficulty of keeping them in line, even when the utmost care has been taken with the earth foundation. Female employés naturally object to work in places where they are obliged to stand upon cold stone floors. There are difficulties in securing the machines to such foundations, and the repairs of machinery when placed upon them, even when resting upon plates of lead or raw hide, exceed those upon timber floors. If a timber floor is placed a short distance from the earth, the dampness will cause dry-rot unless some means are taken to secure thorough ventilation of the space beneath the floor. Earthen drainage-pipes about six inches in diameter, extending through the walls, will ventilate such a space under a small mill, but for a large building it is desirable to make arrangements for a forced ventilation by connecting this space with some department requiring a large supply of air, as the picker-room of a textile mill. Sometimes flues are built in the buttresses of the walls of mills of the more modern types of construction, and by natural draught the air is conducted from the basement, through these flues, expelling it at the upper part of the mill, near the roof cornice. In a New England mill built in 1856, a basement-floor was constructed over a ledge containing numerous fissures, through which water filtrated from the canal supplying the water-wheels. The top of the ledge was blasted off to a depth of two feet below the grade of the floor, and the space nearly filled with stone chips arranged to form blind drains for the removal of the water; above this a layer of coarse gravel, covered by a mixture of dry sand and lime, four inches in depth. The spruce floor upon this foundation has remained practically sound for twenty-eight years, a recent examination showing that the dry-rot had not penetrated the under side of the floor-plank over one-fourth inch. Concretes made of coal-tar and of asphaltum form, in combination with suitable timbers, an excellent basement floor. A floor prepared in the following manner eighteen years ago is still in good condition. The earth was excavated to a depth of one foot below the grade of the floor, and then filled in with coarse stones to the depth of six inches. Floor-timbers covered with hot-tar were set in place and fastened to heavy stakes. The space between the timbers was filled in with a concrete made of coarse gravel, coal-tar and pitch, and finished off level with the upper side of the timbers. Before the floor-planks were laid, their under sides were covered with hot coal-tar. The crude coal-tar as produced by the gas-works will not answer for this purpose, as it is not hard enough unless the volatile products are distilled from it. The pitch was added to increase the hardness of the concrete. Under the same building a similar floor was laid, with the exception that a concrete of hydraulic cement was used in place of a coal tar concrete, and the whole timber rotted beyond repair in eight years. Any kind of concrete floor which does not have a covering of floor-plank should be very thoroughly painted, for the double purpose of preventing the formation of a dust which would wear machinery, and also preventing lubricating oil from softening the concrete. In another instance a floor was laid over dry sand, with a space of about one-half inch between the sand and bottom of the floor-plank. Holes were bored through the planks at distances of four feet from each other, and melted resin poured through these holes into the space below. This floor was laid in 1872, and is perfectly sound at the present time. — *Engineering.*

BUILDING INTELLIGENCE.

(Reported for The American Architect and Building News.)

[Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.]

BUILDING PATENTS.

[Printed specifications of any patents here mentioned together with full detail illustrations, may be obtained of the Commissioner of Patents, at Washington, for twenty-five cents.]

314,219. Apparatus for Operating Warehouse Doors.—G. L. Brownell, Worcester, Mass.

314,238. Combined Chimney and Ventilator.—Thomas C. Harry, Dallas, Tex.

314,243. Stone-Lifter.—Thomas Heathcote, Allegheny City, Pa.

314,262. Truss for Roofs and Bridges.—George H. Pegram, Wilmington, Del.

314,274. Machine for the Manufacture of Bricks.—Joel Tiffany, Hinsdale, Ill.

314,287. Fire-Escape.—Edward W. Fiegenbaum, Edwardsville, Ill.

314,309. Ventilating-Chimney.—Samuel T. Atkin, Georgetown, Tex.

314,316. Draughtsman's Tool.—Theodore G. R. Christian, Philadelphia, Pa.

314,320. Heating Apparatus.—Seneca Dobbs, Rochester, N. Y.

314,338. Chamfer-Plane.—James Mander, Philadelphia, Pa.

314,340. Brick-Machine.—Andrew J. Miller, Meadville, Pa.

314,343. Rock-Drilling Machine.—Henry F. Parsons, New York, N. Y.

314,350. Fastening for Meeting Rails of Sashes.—Thos. S. Smith, New Haven, Conn.

314,355. Fire-Escape.—Ephraim Watts, Middletown, Pa.

314,367. Land-Anchor.—George H. Cook, Palmer, Kans.

314,374. Door and Terrace Step.—Essington N. Gilfillan, Fort Scott, Kans., and William J. Gilfillan, St. Louis, Mo.

314,385. Holder for Lightning-Rods.—Spencer R. Lawshe, Greencastle, Ind.

314,392. Ornamenting Wood.—David McMullan, New York, N. Y.

314,393. Window-Shutter.—Frank D. Paradise, Memphis, Tenn.

314,398. Mould or Cribbing for Concrete Structures.—E. L. Ransome, Oakland, Cal.

314,401.—Locking Mechanism for Doors.—Daniel W. Tower, Grand Rapids, Mich.

314,423. Manufacture of Roofing-Felt.—William H. H. Childs, New York, N. Y.

314,450. Burglar-Alarm.—Alexander Jacobi, St. Clair, Mich.

314,457. Covering for Brick-Hacks.—James S. Lester, Atlanta, Ga.

314,462. Stone-Worker's Lathe.—James O. Messerly, Baltimore, O.

314,483. Manufacture of Wire-Cloth.—Benjamin Searles, Clinton, Mass.

314,493. Shutter-Worker.—Leonard Tilton, Brooklyn, N. Y.

314,511. Levelling-Instrument.—Ernest A. Bostrom, Newnan, Ga.

314,514. Combined Wooden Sheathing and Lath.—Edwin M. Byrkit, Indianapolis, Ind.

314,517. Wrench.—Isaiah Cressey, Boston, Mass.

314,532. Weather-Strip.—Daniel H. Iseminger, Bloomington, Ill.

314,546. Paint-Mixer.—David J. Starrett, Thomaston, Me.

314,562. Saw-Handle.—Frank A. Buell, Brooklyn, N. Y.

314,572. Wrench.—Jonathan Forshey and Christian G. Hirlinger, Philipsburg, Pa.

314,584. Compound for Coating Metallic Roofing.—Samuel B. Johnston and Samuel Hunter, Coon Rapids, Iowa.

314,590. Disinfecting Apparatus for Water-Closets.—A. M. Loryea, New York, N. Y.

314,607. Varnish.—George Reuss, Wilmington, Del.

314,608. Sash-Weight Holder.—Jeremiah Riley, New York, N. Y.

314,617. Water-Closet.—Wm. Smith, San Francisco, Cal.

314,625. Calipers and Dividers.—Oscar Stoddard, Detroit, Mich.

314,628. Fire-Escape.—David S. Thomas, North Platte, Neb.

314,644. Door-Knob.—Joseph Bardsley, Newark, N. J.

314,670. Plumber's Trap.—Charles E. Heiss, Chicago, Ill.

314,677. Floor or Area Covering.—Peter H. Jackson, San Francisco, Cal.

314,683. Window.—Friedrich Keller, Milwaukee, Wis.

314,721. Safety-Appliance for Elevators.—George H. Reynolds, New York, N. Y.

314,736. Elevator.—Uzziel P. Smith, Chicago, Ill.

314,738. Reversible Latch.—William E. Sparks, New Haven, Conn.

SUMMARY OF THE WEEK.

Baltimore.

Building Permits.—Since our last report thirty-nine permits have been granted, the more important of which are the following:—

Geo. W. Moke, 13 two-st'y brick buildings, e s Bayard St.; 16 two-st'y brick buildings, s s Carroll St.; and 16 two-st'y brick buildings, n s Cleveland St., between Bayard and Wooster Sts.

Leander Foremen, 8 three-st'y brick buildings, n s Laurens St., commencing n e cor. McCulloh St.

Geo. Meister & Co., 4 two-st'y brick buildings, w s Division St., n of Baker St.

Matthew Rudolph, three-st'y brick building, w s Charles St., between West and Ostend Sts.

S. D. Price, 12 three-st'y brick buildings, w s McKim St., between Chase and Biddle Sts.

Thos. Slater, three-st'y brick building, e s Little Sharp St., between Baltimore and Fayette Sts.

Jos. A. Bonnett, three-st'y brick building, s w cor. Ensor and East Sts.

Boston.

Theatre.—Contracts for the new theatre on Hollis Street have been passed, and work has begun under the direction of John R. Hall, the architect.

Building Permits.—*Brick.*—*Tremont St., Nos.* 1285 *and* 1287, cor. Prentiss St., apartment-house, 39′ 3″ x 80′; John Miller, owner; J. E. Potter, builder.

Wood.—*Allston St.*, cor. Massachusetts Ave., stable, 18′ x 22′; Ferdinand Morse, owner; C. Skillings, builder.

Sweett St., near Magazine St., manufacturing-building, 14′ x 24′; Masten & Wells, owners.

Holbrook St., near Centre St., dwell., 32′ and 38′ x 48′; Merrick Esterbrook, owner; M. H. Fassett, builder.

Border St., No. 230, storage, 15′ x 20′; James McNeil, owner.

Elm Hill Ave., near Georgia St., dwell., 32′ and 38′ x 48′; Sarah Loring, owner; W. H. Hunt, builder.

Montana St., dwell., 32′ and 38′ x 48′; Sarah Loring, owner; W. H. Hunt, builder.

East Fourth St., Nos. 469, 471, 473 *and* 475, cor. H St., dwell., 22′ 6″ x 51′; Lyman Locke, owner and builder.

Dorchester St., cor. Unnamed St., dwell. and store, 20′ x 30′; Mary Roach, owner.

Unnamed St., near Dorchester St., 2 dwells. and stores, 20′ x 30′; Mary Roach, owner.

Commercial St., near Dorchester St., 2 dwells., 20′ x 22′ and 18′ x 42′; C. E. Ricker, owner.

Walk Hill St., near Blue Hill Ave., dwell., 27′ x 29′; Mrs. Ellen Grover, owner; John Paine, builder.

Saratoga St., No. 561, dwell., 21′ x 40′; P. M. Sullivan, owner; S. C. McCann, builder.

Brooklyn.

Building Permits.—*Lafayette Ave.*, n w cor. Steuben St., three double and one single four-st'y brick flats, felt, cement and gravel roof; cost, corner, $15,000, and others $25,000 each; owner, Paul C. Grening, 429 Gates Ave.; architect, Amzi Hill.

Suydam St., n s, 175′ w Bushwick Ave., two-st'y frame (brick-filled) dwell., tin roof; cost, $4,800; owner, John Sperl, 228 Hewes St.; architect, Th. Engelhardt; builders, J. Armendinger and John Rueger.

Atlantic Ave., s s, about 300′ w Vanderbilt Ave., one-st'y front and two-st'y rear brick carriage-factory, tin roof; cost, $3,000; owner, George Waid, 798 Atlantic Ave.; architect, W. H. Wirth; builder, Thomas Donelly.

De Kalb Ave., s s, 100′ e Evergreen Ave., 4 three-st'y frame stores and tenements, tin roofs; cost, $3,500; owner and builder, Henry Loeffler, 189a Stockton St.; architect, Henry Loeffler, Jr.

Evergreen Ave., s e cor. De Kalb Ave., 2 three-st'y frame (brick-filled) stores and tenements, tin roofs; cost, $3,500; owner, architect and builder, Henry Loeffler, 189a Stockton St.

Willoughby Ave., n w cor. Hall St., four-st'y brick double flat, felt, cement and gravel roof; cost, $20,000; owner, Henry L. Coe, 535 Washington Ave., architect, Amzi Hill.

Seventh St., n s, 257′ 10″ w Sixth Ave., 5 two-st'y brown-stone dwells., tin roofs, wooden cornices; cost, each, $5,000; owner, architect and contractor, Alexander G. Calder, 312 Thirteenth St.

Fourth St., s e cor. Guernsey St., 6 three-st'y frame (brick-filled) tenements, felt, cement and gravel roofs; cost for all, $20,000; owner, architect and builder, Samuel Self, 142 Manhattan Ave.

Stone Ave., w s, 131′ n Atlantic Ave., two-st'y brick factory, gravel and felt roof, brick cornice; cost, $5,000; owner and architect, Darius C. Davison, 779 Halsey St.

Eighth St., n s, about 150′ e Sixth Ave., 4 three-st'y brick dwells., tin roofs, wooden cornices; cost, each, $4,500; owner and builder, C. B. Sheldon, 296 Ninth St.

Tenth St., s s, 200′ e Sixth Ave., 12 three-st'y brick dwells., tin roofs, wooden cornices; cost, each, $4,500; owner and builder, same as last.

Jefferson St., n s, 170′ w Throop Ave., 2 two-st'y brown-stone dwells., tin roofs; cost, each, $5,000; owner and builder, Wm. Reynold, 401 Jefferson St.; architect, I. D. Reynolds.

Second St., s w cor. North Third St., 3 four-st'y brick stores and tenements, tin roofs; cost for the three, $20,000; owner, C. H. Meyer, cor. North Seventh and Sixth Sts.; architect, Thos. Engelhardt; builders, Jacob Rauth and John Falion.

Cook St., No. 25, n s, 100′ w Graham Ave., three-st'y frame tenement, tin roof; cost, $4,200; owner and builder, John Pickel, on premises; architect, Th. Engelhardt.

Quincy St., n s, 125′ e Marcy Ave., 6 three-st'y brown-stone dwells., tin roofs; cost, each, about $6,500; owner, James H. Danon, 490 Eighth Ave.; architect, I. H. Herbert.

Magnolia St., n w cor. Knickerbocker Ave., 2 three-st'y frame (brick-filled) store and tenements, tin roofs; cost, each, $4,800; owner, Elizabeth A. Williams, 108 Suydam St.; architect, Peter W. Higginson.

Pineapple St., n e cor. Hicks St., seven-st'y brick apartment-house, tin roof; cost, $45,000; owner, Edwin D. Phelps, 55 Pineapple St.; architect, M. J. Morrill; builders, P. Carlin & Sons and John S. McKea.

Seabring St., n s, 150′ e Van Brunt St., two-st'y brick factory, tin roof; cost, $6,500; owners, H. K. Worthington & Co., on premises; architect and builder, Eli Osborn.

Luquer St., n s, 150′ w Clinton St., 2 four-st'y brick tenements, tin roofs; cost, each, $7,000; owner, Mary E. Lynch, 228 Sixth Ave.; architect, I. D. Reynolds; builder, John McLean.

Central Ave., e s, 25′ n Prospect St., three-st'y frame (brick-filled(tenement, tin roof; cost, $3,000; owner, Joseph Wendel, 34 Central Ave.; architect, Frank Holmberg.

Ainslie St., No. 126, s s, 161′ w Lorimer St., two-st'y frame (brick-filled) dwell., tin roof; cost, $3,500; owner, Frank P. Naeher, Jr., 71 Powers St.; architect, Th. Engelhardt.

Maujer St., No. 179, n s, 100′ e Graham Ave., four-st'y frame (brick-filled) tenement, tin roof; cost, $5,800; owner and builder, Geo. Schweitzer; architect, Th. Engelhardt.

Adams St., No. 75, n s, 89′ e Bremen St., three-st'y frame (brick-filled) tenement, tin roof; cost, $4,000; owner, John Shanley, on premises; architect, Th. Engelhardt.

Court St., e s, 38′ 7″ s Pacific St., five-st'y brick tenement, tin roof, wooden cornice; cost, $10,000; owner and architect, Catharine A. Dunne, 556 Henry St.; builders, Burns & McCann and Freeman & Sons.

Alterations.—*Myrtle Ave.*, s w cor. Walworth St., one-st'y brick extension, also rear cellar wall removed and brick piers built instead; cost, $3,400; owner, J. Dengler, Myrtle Ave.; architect, S. Harbison; builder, P. Sheridan.

Grand St., No. 413, add two stories; cost, $5,000; owner, J. M. Richards, 208 Keap St.; architect, Wm. H. Gaylor; builders, Thos. Gibbons and Gilmore & Trevor.

Fulton St., s e cor. Boerum Pl., new stairs and alterations in rear; cost, $4,000; owners, Elizur G. Webster, et al., 622 Atlantic Ave.; architect, H. P. Fowler; builder, W. J. Conway.

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Building Permits.—G. Schlenger, three-st'y dwell., 224 North Sangamon St.; cost, $5,000; architect, H. Kley.

G. A. Weiss Malting Elevator Co., office, 900 North Ashland Ave.; cost, $3,000.

Mrs. M. Sanders, three-st'y dwell., 205 West Ohio St.; cost, $6,000; architect, G. Isaacson.

K. Mikkelson, two-st'y dwell., 48 Evergreen Ave.; cost, $3,000.

J. Kortle, three-st'y dwell., 39 Stowe St.; cost, $6,000.

C. E. Woolley, two-st'y dwell., 599 Fulton St.; cost, $4,000; architect, G. Gottig.

L. Witkousky, three-st'y store and flats, 984 Milwaukee Ave.; cost, $5,000; architect, Otto.

Meriden Brittannia Co., six-st'y store, 147 State St.; cost, $30,000; architect, E. Baumann; builder, C. J. Mueller.

E. B. Sheldon, 2 two-st'y dwells., 377 and 379 Ohio St.; cost, $6,000; architects, Burling & Whitehouse.

J. Freeman, three-st'y dwell., 443 Dearborn St.; cost, $6,000; architect, W. H. Drake.

E. J. Lehman, 4 three-st'y stores and dwells., 2300-2306 State St.; cost, $20,000.

A. Wachter, 2 cottages, 1002 and 1004 Thirty-fourth St.; cost, $3,000.

E. Will, two-st'y dwell., 155 Dayton St.; cost, $2,500.

J. Dannehy, 7 two-st'y dwells., Ashland Ave. and West Taylor St.; cost, $20,000; architect, C. L. Stiles; builder, L. Dazzling.

C. J. Berfeld, 2 two-st'y dwells., South Park Ave.; cost, $9,000; builder, J. Griffith.

J. Butzow, three-st'y store and flats, 526-530 Ogden Ave.; cost, $5,000; architect, L. Weber.

A. Bunte, two-st'y dwell., 267 Fremont St.; cost, $3,000.

C. E. Stebbins, three-st'y livery-stable, 715 and 717 West Lake St.; cost, $12,000.

M. Gallagher, two-st'y dwell., 639 Taylor St.; cost, $2,500.

J. Lally, three-st'y dwell., 226 South Sangamon St.; cost, $5,500; architect, C. C. Miller.

Mrs. E. Bundy, four-st'y store and flats, 3743 Cottage Grove Ave.; cost, $7,000.

T. S. Wild, two-st'y factory, 110 Indiana St.; cost, $3,000.

C. L. Rasmussen, three-st'y dwell., 185 West Erie St.; cost, $6,500; architect, Rehwoldt.

F. Hacker, two-st'y dwell., 1390 Twenty-second St.; cost, $3,000.

J. Spange, dwell., 3223 Butterfield St.; cost, $2,500; architect, C. Spohr.

B. Laubenheimer, three-st'y dwell., 37 Lane Pl.; cost, $4,500; architects, Buck & Gillispie.

L. Sterne, three-st'y flats, 172 Eugenie St.; cost, $6,000.

A. Blettner, two-st'y flats, 528 Ashland Ave.; cost, $4,200.

J. Pakorney, three-st'y flats, 155 Bunker St.; cost, $5,000; architect, P. W. Ruehl.

G. V. Hanskins, two-st'y barn, 1444 Michigan Ave.; cost, $4,000.

K. G. Schmidt, two-st'y office, 498 Webster Ave.; cost, $3,500.

A. McNally, 9 two-st'y dwells., Clark St., cor. Garfield St.; cost, $30,000; architect, J. S. Eilsbee.

F. Benslee, two-st'y store and dwell., 698 and 700 Leavitt St.; cost, $4,500.

J. Briet, two-st'y dwell., 65 Hurlbut St.; cost, $3,500.

F. Frellman, three-st'y dwell., 276 Fremont St.; cost, $5,500.

A. A. Cudell, three-st'y flats; cost, $8,000.

A. P. Upham, two-st'y dwell., 3218 Groveland St.; cost, $8,000; architect, W. Linghurst.

J. Roby, three-st'y store and flats, 315 Austin Ave.; cost, $8,500; architect, F. Keltenech.

J. Heinrich, three-st'y dwell., 197 Forquer St.; cost, $5,000; architect, J. M. Kralovec.

G. N. Hull, 5 two-st'y dwells., 351-359 South Oakley St.; cost, $15,000, architect, A. Sprague.

Chas. Lausdon, two-st'y dwell., 808 Warren Ave.; $3,000.

J. Perlberg, three-st'y dwell., 51 Union St.; cost, $6,000.

J. G. Earle, three-st'y stores and flats, 3131 and 3133 Cottage Grove Ave.; cost, $6,000.